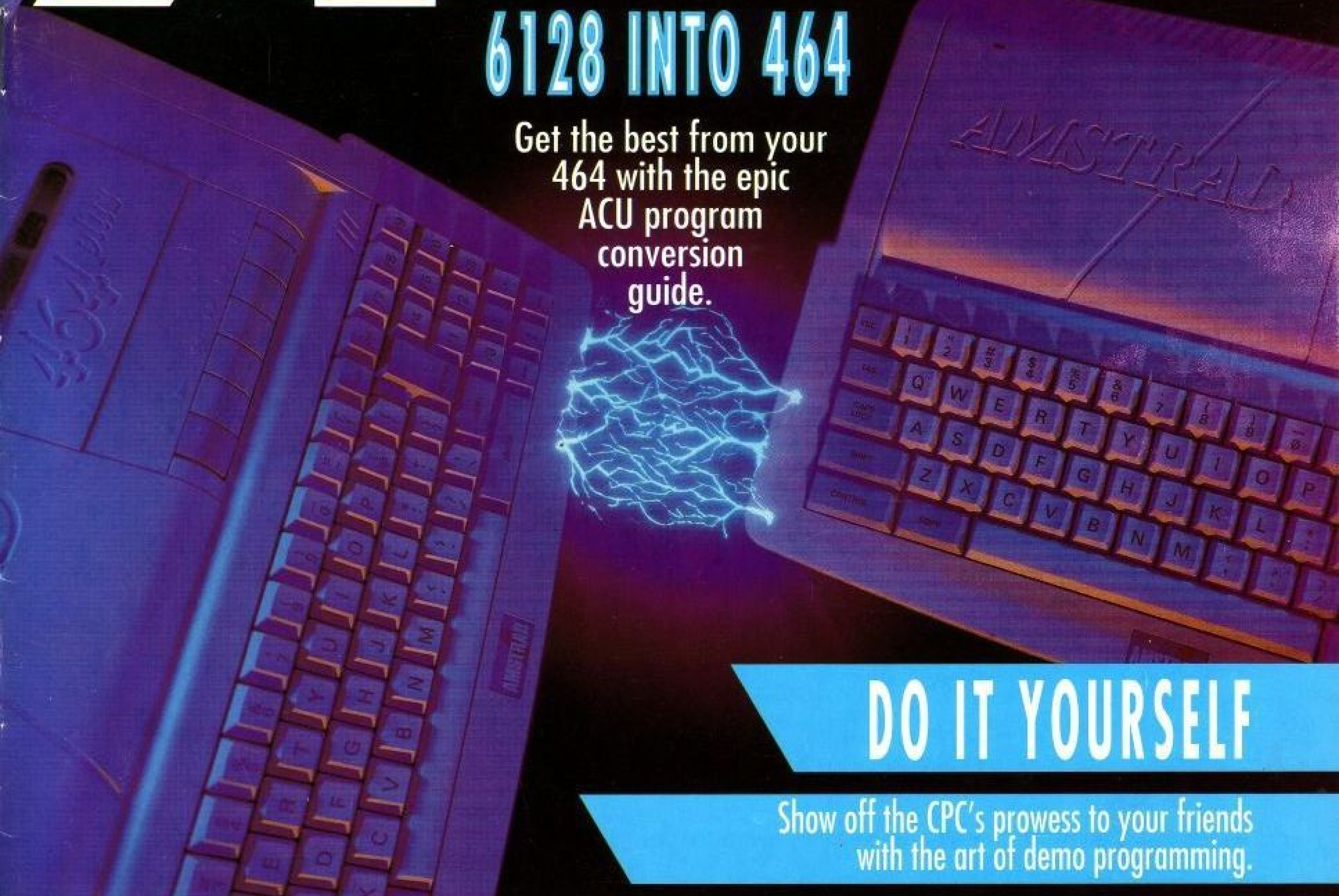
Five fantastic Ginormous Collection compilations must be won PLUS the latest epic offerings in the PIECES pages inside. Be there!

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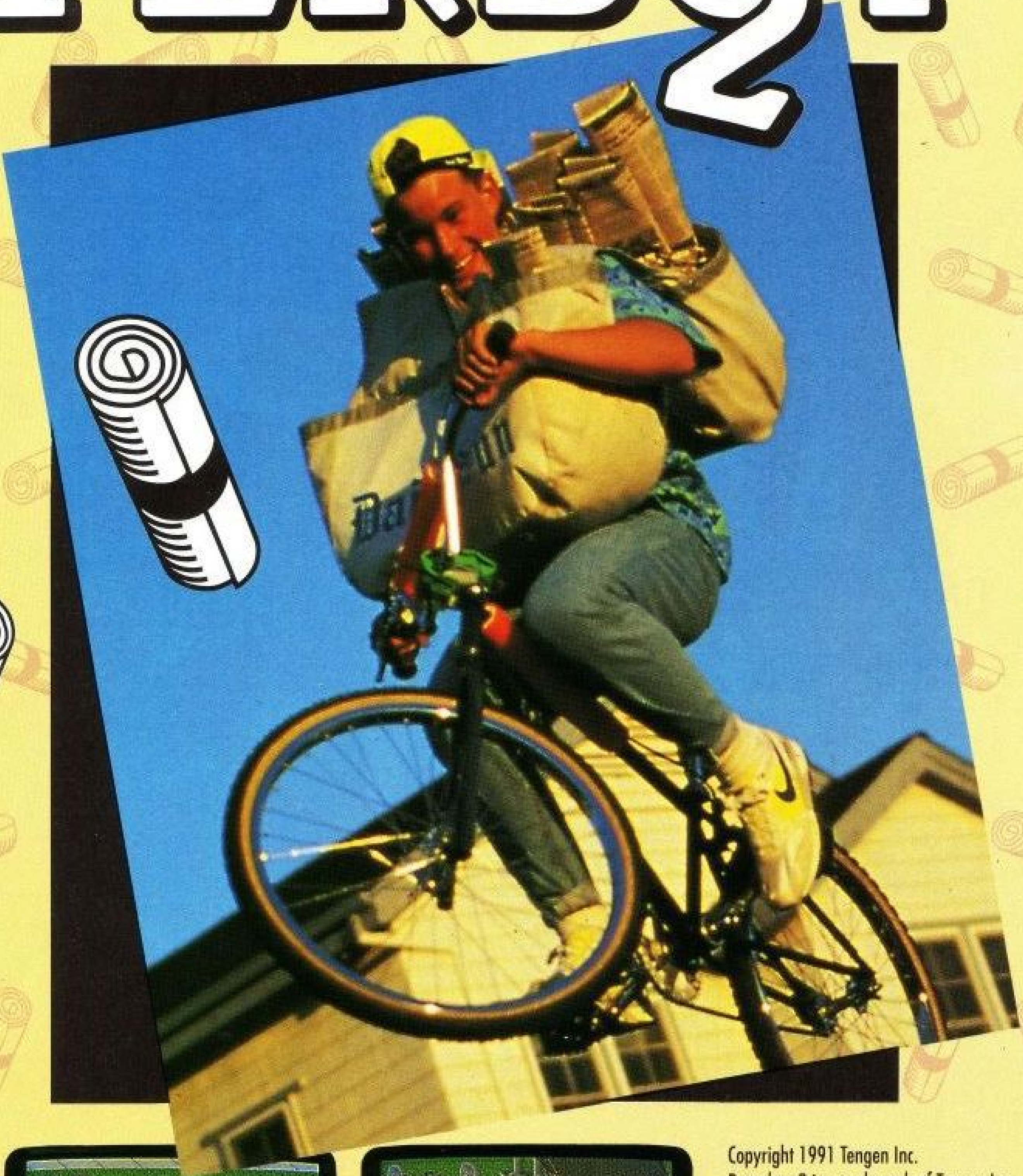
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Look out - he's back!

PAPERBOY 2

No window is safe. No fence is too high. The paperboy is determined to deliver the paper to his subscribers any way he can. Tossing papers left and right, riding in three directions, jumping anything, this free-wheeling carrier visits more neighbourhoods and houses, faces more targets and obstacles, in more vivid colours than ever before.

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REGULARS

FEATURES

DIZZY TIDINGS

Did we get a response to our fabulous Dizzy Collection compo or what? We've had the whole crew emptying bags all over the office for weeks, much to the annoyance of the cleaning lady. After rolling around in the pile for a couple of hours, however we managed to pull Ziggy out and surprise, surprise! What should he have in his hand but five winning entries!

Yes indeedy, it's time to announce the names of the lucky blighters who will be walking off with a Code Masters goodie bag, jam-packed with Dizzy bits and pieces.

So, without further ado, here goes.The winners are:Claire Kings of Gosport, Hants.;John Gidman of Biddulph, Stoke-on-Trent;Peter Beaumont of Bolton, Lancs.;Peter Osborne of Long Stratton, Norwich and Eamon McAllister of Kilrea, County Derry, N.Ireland.

Keep your eyes on the post you lot, as the goodies should be arriving very shortly indeed.Sorry you couldn't all be winners, but don't forget this month's fab compo on page 12.

While we're on the subject of competitions, you would not believe the response we've had to the February issue Print Power giveaway.

It seems like everybody under the sun wants to get hold of that superb Panasonic printer, and we don't blame you either.Be patient, however, and the incredibly lucky winner will be announced very soon.



ALL FAIR

Here's all the latest on what must be the fastest growing computer show around, the All Formats Computer Fairs.If you missed out on the events of January and February of this year, never fear, as the Fair will be back in your area soon.If in doubt, consult the diary dates opposite and see when you can get along to pick up some bargains.

See what we mean? The AFCF people really mean business nowadays and, with admission fees set at just £4, you really can't aford to miss out.On the other hand, if you think you have enough wares to set yourself up on a stall, it'll only cost you a measly £60 and, when you think of the number of people who attend the Fairs, you know you've got a bargain.

If you want to know more about the Fair, along with advance ticket and stall bookings, then why not give John Riding a ring on 0225 868100 and tell him ACU sent you.

West Midlands - The National Motorcycle Museum, Solihull, Birmingham. 11th Jan./ 23rd Feb./26th April.

North - University Sports & Exhibition Centre, Calverly Street, Leeds, J47-M1. 12th Jan./22nd March.

Scotland - City Hall, Candleriggs, Glasgow, J15-M8. 26th Jan./8th March./ 7th June.

North East - Northumbria Centre, Washington, A194(M). 8th Feb./12th April.

London - 1. Novotel Hotel, 1 Shortlands, Hammersmith, W6 8Dr. 14th March. 2. Sandown Exhibition Centre, Sandown Park, Esher. KT10 9AJ. 16th May.

West - Brunel Centre, Temple Meads, Bristol, M4-M32. 19th Jan./15th March./ 17th May.

East Midlands - Donington Park, J24-M1 & (off A42). 1st Feb./21st March.

North West - Haydock Park Racecourse. J23-M6 & A580. 2nd Feb./14th June.

GOOD LUCK

There's no such thing as seven years bad luck when you break into Miracom. In fact, if you pick up any modem from the V.32 specialists from now on, you'll also be picking up an incredible five year warranty.

The waranty is a return to factory agreement, with Miracom's Ipswitch repair facility currently achieving a seven day turn around with repaired units returned by overnight courier.

The move comes as a result of Miracom producing their own products, rather than badged modem from other companies.As Clive Hudson, Miracom's Marketing Director, puts it:"You can only offer this kind of warranty if you are totally confident in the product."

The extended warranty also covers the new US Robotics WorldPort range of portable modems, which Miracom is now distributing in the UK, and predictions are that other manufacturers may well follow suit, which has to be good news for newcomers to the world of comms.

For more details about the extensive Miracom stocklist and the warranty, try ringing Clive Hudson on 0753 811180.

JOIN THE ACADEMY

If you fancy reaching dizzying new heights in playing power, then our advice is to log on to the all-new Space Academy.

Sponsored by Gabriel Scientific Consultancy Ltd., a leading name in computer training and support, this novel, and extremely alternative, club is designed to take in the lighter side of business and home computing.The emphasis in The Space Academy is definitely on being totally weird and crazy.

The Space Academy itself is at the bottom of the ladder of the Federation's Space Fleet, where normal (or not so normal) people become Space Cadets.

Open to all ages, the Space Academy is essential for people interested in games, programming, comms and hacking.For just a £25 a year Scholarship, Cadets will receive an incredible collection of goodies, including a Space Academy T-shirt, a cap, the Official Federation Space Fleet Handbook and four quarterly bulletins, entitled "Urgent Communique from Space Fleet Command" (Communique for short), as well as access to the Space Fleet's Bulletin Board.

On top of all that, recruits will also receive discounts on the services provided by Gabriel Scientific Consultancy Ltd.So, if you want to climb aboard this brilliant new club, then get in touch with the Space Fleet Admiral, Mike Connor at Gabriel Scientific Consultancy Ltd., 96 Wellington Road South, Stockport, Cheshire, SK1 3UH.Or telephone 061 474 7349 for more details.

A LITTLE MUSIC

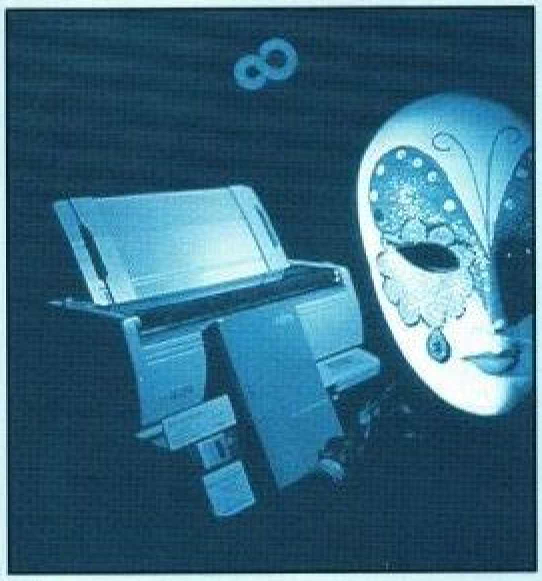
Midi music buffs will be delighted to hear of the new dates for the third MIDI Music Show, at the Novotel in Hammersmith, London.

Focusing on all uses of MIDI in all aspects of music and sound, there will be over 140 exhibitors including Roland, Yamaha, Atari and many more, along with all the latest MIDI products on the market.

If you don't know much about the subject, don't worry, as on hand tuition and advice will be available free of charge, as well as a detailed seminar program, free to all visitors to the show.

There will also be live performances, and you can even get a go on some of the excellent equipment yourself.

The show runs from April 24-26 and, if you want to know any details about prices and advance bookings, try ringing the show hotline on 081 547 1183 now.



MULTI-FEATURES

Remember the Fujuitsu DL900?That's the one!We gave it the lowdown a few months back here in ACU.Well, if you liked that one, then there's a good chance you'll like the latest addition to Fujitsu's new low end dot matrix printer range, the DL1200.

Priced slightly higher than its predecessor at around £549, the DL1200 is still excellent value for money, considering the many features included as standard.

With a small footprint of just 195mm x 526mm x 250mm, the space is saved by mounting the print-head underneath the friction platen.Operating at just 52 dB, the DL1200 is a quiet companion to boot.

Incorporating six resident fonts, with resident emulations including IBM, Epson, Fujitsu and DEC, the DL1200 has a top print speed of 240 cps in draft mode, making it no slouch either.

Designed to handle a variety of media, the DL1200 looks well worth taking out for a test spin.For more information on this, and others in the Fujitsu DL range, why not get in touch with John Goodyear at Fujitsu Europe Ltd., 2 longwalk Road, Stockley Park, Uxbridge, Middlesex, UB1 1AB, or telephone on 081 573 4444.



DIARY DATES

Yep, it's getting to the show time of year again, as the Spring Computer Shopper Show prepares to receive the masses at the National Hall, Olympia in London.

Guaranteed to feature all the latest hardware, software and peripherals on the market, basically, if you want to know what's happening and what isn't, then make sure you book a place between May 28 and 31 at the show.

Tickets cost £6 for adults and £4.50 for children, with a special family ticket (two adults and two children) going for just £18.

However, if you want to beat the rush and get a discount to boot, then your best bet is to try the CCS hotline as soon as possible.All the details you need are on 071 373 8141 and, if you book early, you could get a quid off your child's ticket, as well as £1.50 off the adult price.Can't be bad.Ok, see you all at the show.



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Star LC-10 Mono	3.95	7.00	15.00
Star LC24-10	4.95	9.00	20.00
Panasonic KXP 1124	3.95	7.00	15.00
Star LC-10 Colour	5.95	11.00	
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Star LC200 Colour	10.95	19.95	
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★★ LET'S GET SERIOUS ★★

A monthly look at serious software

This month:
ADVANCED ART STUDIO

If you are interested in drawing on your CPC then this is the program for you. The Advanced Art Studio offers an easy to get started approach - ideal for youngsters just wanting to doodle, but has the facilities to go much further. Operating in Modes 0, 1 or 2 with 16 pen sizes 8 spray cans and 15 user definable multicoloured brushes. Images may be stretched, squashed, flipped or rotated all pictures can be saved to disc or printed on any Epson compatible printer Colour print outs can be achieved using Colourdump 2 and a Star colour printer.

ADVANCED ART STUDIO - £17.95 (disk)
£15.95 (tape-128K)
also available with AMX Mouse - add £32

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Money Manager *(home accounts)*	21.95
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Sprites Alive!	17.95
Sprites Alive! Compiler	22.95
Maxam Assembler	18.95
Mini Office 2	13.95
ColourDump 2	12.95

3-D CONSTRUCTION KIT (6128)
MJC PRICE £19.95

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LCL Micro Maths (11-GCSE)	19.95
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LCL Mega Maths (A-level)	19.95

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For 6 to 8 years	8.95
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For 2 to 5 years	11.95
For 5 to 7 years	11.95
For 7 to 12 years	11.95
NEW Fun School 4 *6 programs per disc*	
For under 5 years	11.95
For 5 to 7 years	11.95
For 7 to 11 years	11.95

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£169.95

PANASONIC KXP-1170
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£159.95

STAR LC-200
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24 PIN PRINTERS

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STAR LC24-10
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£209.95

PANASONIC KXP-1123
Panasonic's entry level 24-pin, giving a better print quality than the Star models, but with 4 LQ fonts and fewer effects
£219.95

STAR LC24-200
The replacement for the popular LC24-10, with the same 5 letter quality fonts, shadow and outline effects. Much quicker than the 24-10 and has improved paper handling.
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Replacement for the excellent 1124, offering excellent text quality, build quality, paper handling and control panel. Now offers shadow & outline effects, 7 LQ fonts and a new super LQ font.
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Mini Office 2	9.95

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BROWN BLUES

Further to the saga of my Sim City discs, I have now obtained one from Software City and, believe it or not, it works! No problems at all, so I can only imagine that there were troubles on all the others.

Just one small point - on the program, once it is running, I have a message coming up "Brownouts detected". Nowhere in the instructions does it explain what this means. Any ideas?

K.W.Austin, Margate, Kent.

Ziggy: Well, I can't say that those brownouts are terribly familiar to me. As I am writing this, however, some of the techie bods at Infogrames are looking into the problem and assure me that they will get back when they know what it is all about. That means, unfortunately, that you'll have to wait until next month to discover the awful, or nice, truth. In the meantime, if anybody else knows what these brownouts are all about, let me know and I'll pass the message on to Mr.Austin. By the way, I'm glad you got your disc working at long last.



ZIGGY'S MAILBOX

SAM WHO?

I was doing my usual bedtime reading of old ACUs when I found something in a 1987 edition which kept me awake that night. I also found the very same argument in a recent edition of your rival, but they were quick to fob it off with jokes and excuses. I hope you will at least give it a fair hearing.

It is to do with the fact that there is a 16 bit CPU called the Z280, which is fully compatible with the Z80 in every way. I would be satisfied that building a 16-bit CPC would be difficult, were it not for the evidence of my own eyes. I saw a little computer even stranger in shape than the GX4000 at the Glasgow AFCF, with arcade quality graphics, called the SAM Coupe (and now I wish that I had kept the information leaflet that I was given, because I can't remember if it was 16-bit or not!). It has the capacity for 2x3.5" disc drives, a big memory (can't remember how much!), Amiga/ST graphics capabilities and, most importantly, it is compatible with all Spectrum software.

Is this a 16-bit Spectrum, or is it a souped up 8-bit machine? Either way, the CPC version of this, I can imagine, would seem to be the perfect home computer. Imagine the versatility and ease of use of the CPC for serious applications (a joke on 16-bit machines, as the Doc said last issue), combined with 16-bit graphics when you feel like a break from business.

I use my 664 mainly for WP and am very satisfied with it indeed, but if this dream machine came out, I might buy it, plus some games and a colour monitor!

Please look into this to ease my insomnia.

Andrew McGowan, Bearsden, Glasgow.

Ziggy: Well, if I remember rightly, the SAM Coupe was, indeed, something of a machine. Basically an 8-bit beast, it contained some very nifty chips to enhance the sound and colour capabilities to 16-bit quality. Produced by a company called Miles Gordon Technology, the machine never quite made it as a best-seller, though I never understood why at the time, and seemed to disappear off the streets just over a year ago, when everybody began to claim that the 8-bit machines were a thing of the past.

The main problem is that most people believed them! After all, I still firmly believe that the CPC is still the most user-friendly and versatile of home computers around. Ok, so the memory is a little lacking and spending £400 to buy the German Hard Disk may be expensive, but how much does PC material cost??

Do you remember a little series of machines called the CPC Plus range? Well, here you had some updated CPCs, featuring cartridge based games to give totally enhanced graphics and sound capabilities, and what happened? Nobody seemed to want to support it and not many people seemed too interested in buying it, so they say.

Again, we are constantly told that 8-bit machines are a thing of the past, but that is mainly because more profit can be made on other machines and not

enough people realise the true potential of the machine they have at their fingertips.

As for a 16-bit CPC? Well, it won't be made now, but it's up to us CPC fanatics to convice the shallow world of marketing that we are still around and demand servicing!

MORE TOUCHDOWN

I am writing to you to gather information on the Touchdown Tape offer in ACU, February and March 1990. I was wondering if the offer is still open, just in case I send a cheque to you for no reason. Please let me know if the offer is still around.

R.Fanning, Bletchley, Milton Keynes.

Ziggy: Even though the offer is officially closed within ACU, I am sure that the author of the game will still be able to squeeze out a few copies to latecomers. If you write to: Duncan Evans, 20 Dudley Street, Leighton Buzzard OU7 8SE., stating your intentions, enclosing a cheque/PO for just £5 and an SAE, I am sure he will oblige. Ok?

NOT EASY!

I take your magazine regularly and I particularly enjoy Glynne Davies' Easydraw graphics program, which I am collecting and find really useful. It is far better, for example, than the Smartprog which Amstrad Action ran a few months ago.

I found, however, after typing in this month's addition (the SAVE and FILL routines), that the double height text comes out scrambled when I try and print it on the screen, and I can't seem to rectify this.

Also, on line 24520, what is = to 8? And on line 4020, what is = to 3?

Could you print a correction in next month's issue, as I can't seem to find a fault with my typing and I find the whole graphics program really useful, especially the patterned fill displays.

Guy Hanson, Arthur Street, Grimsby, South Humberside.

Ziggy: Yes, I know we've had a lot of gripes concerning our Easydraw listings, particularly when it came to differentiating between the letter l and the number 1. In your case Mr Hanson, the missing culprit in both cases is the letter l.

I hope that helps you out a little. If not, then the full listing is printed out in this month's graphics outing which, unfortunately, is the last in the series. Never fear, however, as Mr Davies will be back very soon with some advanced BASIC goodies for you to get your teeth into.

NO ACU?

I am writing to you regarding your magazine. I have been unable to get any ACUs for two months now. I have been to all the newsagents and book shops around Stafford and other areas, but none of them seem to stock it anymore.

Last week, I went into WH Smiths and had a word with the manager. He told me that they aren't going to supply the magazine anymore and, as Smith's supply all the shops around the Stafford area, that means that nobody will be able to get hold of ACU anymore around here.

I am a bit disappointed at not being able to get hold of ACU, as I have just started my own PD Library and, after writing to Bob Adams, he said that he is going to mention me in the February issue. I know that you can obtain ACU by subscribing but, as I am unemployed at the moment, I cannot afford to do that.

I have been talking to other CPC owners around here, and they are also disappointed at not being able to get hold of ACU, so could you look into this problem.

B.A.Egerton, Linden Close, Staffs.

Ziggy: Yep, it's the same old problem again. Only you and I know how disappointing it is not being able to get hold of your favourite mag. Here's what you should do: I want everybody who has, or is, experiencing difficulties, to write to Ana Ubaka, MCM Ltd, 116-120 Goswell Road, London EC1V 7QD.

She will be collecting all of the information about lacking mags in your area, and should be able to get something going to sort the problem out. Please, all of you, we need your help to get this one sorted, so any problems, let us know at the address above.

JOY TIME

When you did your ACU joystick roundups over Christmas, you mentioned a couple of sticks from a company called Beeshu. Seeing as I liked the look of these controllers, I have subsequently spent many an hour rooting through computer shops, trying to find out where I can get hold of one.

However, to date, all of my efforts have been to no avail. Do these joysticks actually exist? Or are they just the figment of the over-active mind of your trigger-happy joystick expert?

Nobody I have spoken to seems to have even heard of the company called Beeshu. Are they Japanese? American? Outer Mongolian? Or do they actually come from beyond the Crab Nebula, which would account for their somewhat futuristic designs perhaps?

If you could shed any light on the existence of these sticks, I would be most grateful, even if it does mean waiting for the arrival of interstellar travel to go and collect one.

G.Williamson, Liphook, Hants.

Ziggy: Considering the amount of mail and telephone calls we at ACU have received concerning the Beeshu range of joysticks, they should be doing very nicely in the after-Christmas sales stakes. Due to a minor oversight, the contact for Beeshu was omitted during the roundups, though the new range was indeed given a mention in the October 1990 issue, on the news pages.

Well G (I didn't catch your name), you were right on one of your guesses. Beeshu is an American based company, though whether they get their designs from the planet Zanussi or not, I really don't know.

Anyway, Beeshu is now being handled in the UK by Bridlington based Euromax, and you can get in touch with them by ringing 0262 601006. Fair enough?

WHAT'S FAIR

Following on from a letter in one of your recent issues concerning software piracy, I must admit I was left feeling a little confused as to what can, or can't be done.

Surely if all you are doing is swapping your games with somebody else's, then there is nothing illegal about this at all. For that matter, selling off your old games cannot be illegal either, otherwise FAST would have something to say about your BITS section, wouldn't they?

Maybe I am talking a load of old rot, I don't know. So please could you put me straight on this issue, before I think about selling off some of my old games and get into trouble.

Peter Carter, Great hollands, Bracknell, Berkshire.

Ziggy: What is and what is not legal can all get a little confusing at times, I agree. All you need to do however is follow one simple groundrule and you will have nothing whatsoever to worry about.

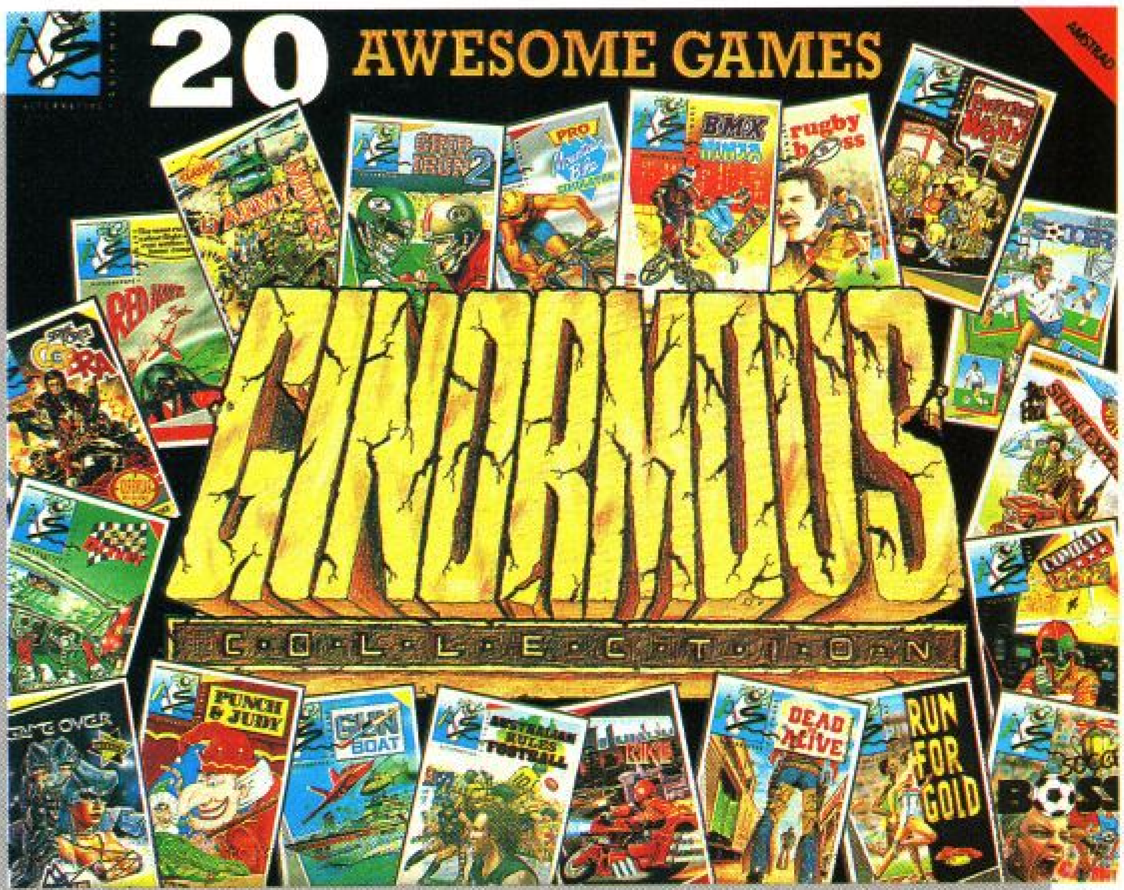
Firstly, there is nothing to stop you contacting penfriends, or local friends, and swapping the old games you don't want for any games they don't want and you do, if you get my drift.

Secondly, (and even though games companies would much rather you gave the game back to them and let them sell it again!!), there is nothing to stop you from selling off your old games to somebody, just as long as they are the original games in their entirety.

What you should never do, is take a back-up copy of a game and attempt to sell that for a profit. Obviously, some people do make back-up copies of games for their own use, in case the original should corrupt and although this is, strictly speaking, a bit naughty, as long as it is only for your own use, then nobody is any the wiser.

Once you start selling off those copies, however, you are very definitely on the wrong side of the fence. So, my advice Peter, is to go ahead and sell those games of yours and good luck to you, have no worries.

COMPETITION



No less than 20 fabulous games grace Alternative Software's excellent Ginormous Collection and, if you want to get your hands on one of five absolutely FREE copies, then get thinking and answer the three simple questions below. The first five correct entries pulled out of our mailbag will get the goodies, so get scribbling now.

1. What was the name of the one-eyed giant of Greek mythology.

2. What is the world's largest Ocean?

3. What is the largest planet in our Solar System (excluding the Sun which, of course, is pretty ginormous, though not as big as this Collection!)?

Send your entries to:

ACU Giant Compo
Sunnyside Cottage
Carluddon
St.Austell
Cornwall
PL26 8TY.

The editor's decision is final.

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- *4K Printer Buffer + 2 Fonts*
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- *Epson and IBM Emulation*
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RRP: £199
STARTER KIT £25
TOTAL RRP: £224
SAVING: £109
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£115
+VAT=£135.13 ref: PRI 2120

9 PIN PRINTERS



FREE! COLOUR KIT

192 CPS **80** COLUMN

- *Citizen Swift 9 - 9 pin - 80 column*
- *192cps Draft, 48cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240×240dpi*
- *Epson and IBM Emulation*
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RRP: £239
COLOUR KIT £38
STARTER KIT £25
TOTAL RRP: £302
SAVING: £123
SILICA PRICE: £179

£179
+VAT=£222.08 ref: PRI 2209



Colour Option Extra - See Accessories

192 CPS **136** COLUMN

- *Citizen Swift 9x - 9 pin - 136 column*
- *192cps Draft, 48cps NLQ*
- *8K Printer Buffer + 3 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 240×240dpi*
- *Epson and IBM Emulation*
- *A3 landscape printing*
- *FREE Silica Printer Starter Kit*

RRP: £329
STARTER KIT £25
TOTAL RRP: £354
SAVING: £105
SILICA PRICE: £249

£249
+VAT=£292.58 ref: PRI 2309

24 PIN PRINTERS

NEW!



FREE! COLOUR KIT

216 CPS **80** COLUMN

- *Citizen Swift 24e - 24 pin - 80 column*
- *216cps Draft, 72cps LQ*
- *8K Printer Buffer + 6 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360×360dpi*
- *Epson, IBM & NEC P6+ Emulation*
- *FREE Colour Kit*
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RRP: £365
COLOUR KIT £38
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SAVING: £169
SILICA PRICE: £259

£259
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NEW!



Colour Option Extra - See Accessories

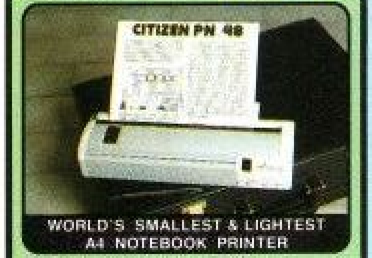
192 CPS **80** COLUMN

- *Citizen 224 - 24 pin - 80 column*
- *192cps Draft, 64cps LQ*
- *8K Printer Buffer + 2 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360×360dpi*
- *Epson and IBM Emulation*
- *Colour Option Available*
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RRP: £269
STARTER KIT £25
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SAVING: £95
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£199
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- *Power: Mains, Battery or Car Adaptor*
- *FREE Silica Printer Starter Kit*

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TOTAL RRP: £350
SAVING: £101
SILICA PRICE: £249

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24 PIN PRINTER



Colour Option Extra - See Accessories

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- *Citizen Swift 24x - 24 pin - 136 column*
- *192cps Draft, 64cps LQ*
- *8K Printer Buffer + 4 Fonts*
- *Parallel Interface*
- *Graphics Resolution: 360×360dpi*
- *Epson, IBM and NEC P6 Emulation*
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- *FREE Silica Printer Starter Kit*

RRP: £489
STARTER KIT £25
TOTAL RRP: £514
SAVING: £165
SILICA PRICE: £349

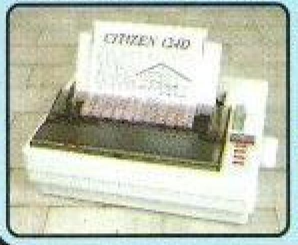
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80 COLUMN

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- *Graphics Res: 360×360dpi*
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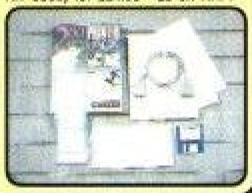
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....

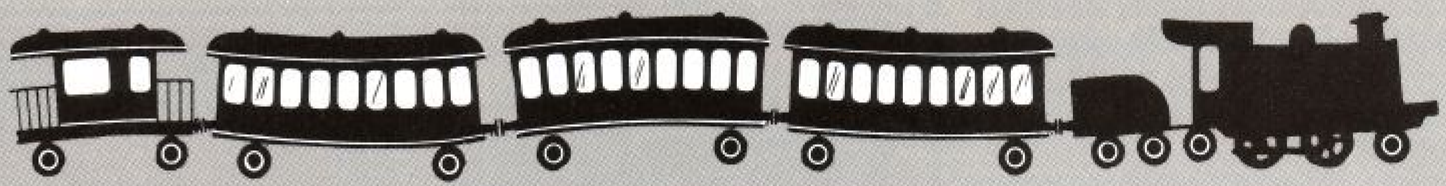
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TRAIN

By Mark Farrow

Here's a very simple progette to start the ball rolling this month.What it does, is demonstrate the extremely easy way of creating an excellent image on screen, as well as giving it nifty sound effects.All we need now is for someone to add a routine to shunt it off the screen along the tracks.Any takers?

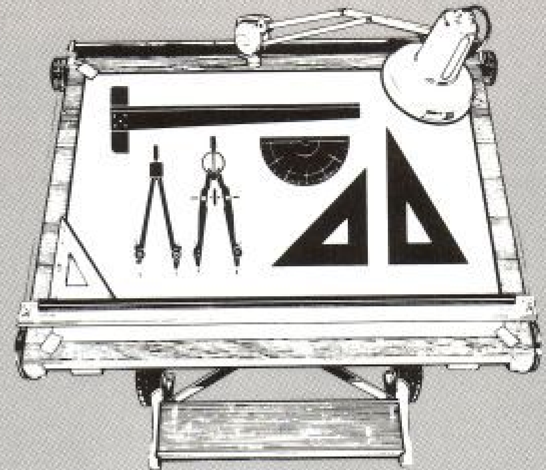
Just run this little gem and enjoy it.

```
10 MODE 0 [DB]
20 PEN 4:LOCATE 7,10:PRINT CHR$(149) [D6]
30 LOCATE 7,11:PRINT CHR$(143) [6E]
40 LOCATE 7,12:PRINT STRING$(4,164) [54]
50 PEN 3:LOCATE 8,10:PRINT CHR$(132) [CB]
60 LOCATE 8,11:PRINT CHR$(143) [7C]
70 LOCATE 10,11:PRINT CHR$(143) [EF]
80 LOCATE 10,10:PRINT CHR$(143) [E1]
90 PEN 1:LOCATE 9,10:PRINT CHR$(240) [CD]
100 LOCATE 9,11:PRINT "5" [42]
110 PEN 2:LOCATE 1,13:PRINT STRING$(40,143) [4A]
120 LOCATE 1,16:PRINT STRING$(40,143) [AB]
130 PEN 1:LOCATE 1,14:PRINT STRING$(40,204) [08]
140 LOCATE 1,15:PRINT STRING$(40,204) [5A]
150 ENT -3,2,1,1,2,-1,1 [2D]
160 ENV 9,15,1,1,15,-1,1[A2]
170 FOR a=1 TO 10:SOUND 1,4000,0,0,9,3,15:NEXT [99]
```

3D MAPPER

By Sean McManus

Something for the designer here, with an excellent image creator, using a simple grid system to do your mapping.Run the program, then, using the keys indicated, simply map out your image on the grid, not forgetting to plot each point as you go.When, you've done that, press X to see a brilliant 3D version of your creation come to life on the screen.It couldn't be more simple.



```
1 ' 3d Mapper - 18th May 1991 [71]
2 ' (C) 1991 Sean McManus [72]
3 ' [73]
10 MODE 1:PAPER 0:INK 0,0:BORDER 0:INK 2,15:INK 3,6:INK 1,26:DIM shape(20,20):FOR x=1 TO 20:FOR y=1 TO 20:LOCATE x,y:PEN 3:PRINT ".";:NEXT y,x:PEN 1:LOCATE 27,2:PRINT"3D Mapper":LOCATE 22,4:PRINT CHR$(164)" 1991 Sean McManus":PEN 2:LOCATE 21,7) [6B]
20 PRINT"8=Up, 2=Down, 4=Left":LOCATE 23,8:PRINT"6=Right, 5=Plot.":LOCATE 25,10:PRINT"X - Process":GOSUB 100 [B2]
30 x=1:y=1:GOSUB 90:WHILE a$<>"X":a$="":WHILE INSTR(" 8246X5",a$)<2:a$=UPPER$(INKEY$):WEND:LOCATE x,21:PRINT" ":LOCATE 21,y:PRINT" ":PEN 2:LOCATE 21,7:PRINT"8":IF a$="8" and y>1 THEN y=y-1 ELSE IF a$="2" AND y<20 THEN y=y+1 [4D]
40 IF a$="6" AND x<20 THEN x=x+1 ELSE IF a$="4" AND x>1 THEN x=x-1 ELSE IF a$="5" THEN shape(x,y)=shape(x,y) XOR 1:LOCATE x,y:IF shape(x,y) THEN PEN 2:PRINT CHR$(143); ELSE PEN 3:PRINT"."; [E1]
50 GOSUB 90:WEND [36]
60 MODE 1:GOSUB 100:FOR g=1 TO 20:FOR h=20 TO 1 STEP -1 [49]
70 IF shape(g,21-h) THEN FOR z=1 TO 10 STEP 2:PLOT 100+(g+h)*10+z,200+(h-g)*10-z-20:DRAWR 0,20,2:DRAWR 10,10,1:PLOT 100+(g+h)*10+10+z,200+(h-g)*10-(10-z)-20:DRAWR 0,20,3:DRAWR -10,10,1:NEXT [53]
80 NEXT h,g:END [2B]
90 LOCATE x,21:PEN 1:PRINT"+":LOCATE 21,y:PRINT"+";:RETURN [63]
100 SYMBOL 255,48,254,22,60,116,210,254,16:LOCATE 40,25:PEN 1:PRINT CHR$(255);:LOCATE 1,1:RETURN [7D]
```

SCNSV

By Sean McManus

Here's a little something solely for you lucky 464 owners.What does it do?Well, judging from the weird title, something decidedly techie.In fact, this proggie will install two new RSXs, |SCNSV and |SCNLD, which save and load respectively, the current screen, with all its windows, pens, inks and what have you.Quite a nifty device, what?Try it for yourself and see what you think.




```
1 ' SCNSV and SCNLD RSXs [71]
2 ' (C) 1991 Sean McManus [72]
3 ' CPC464 only [73]
4 ' [74]
5 ' Do the |tman ? Oh.  Maybe not. [75]
6 ' [76]
10 MODE 1:INK 1,26:INK 0,0:BORDER 0:PRINT"CPC464 Screen Saver":PRINT"(C) 1991 Sean McManus":PRINT:PRINT"Installs two new commands - |SCNSV and |SCNLD which save and load the current screen with all its windows, pens, inks etc.":PRINT [0E]
20 FOR g=40000 TO 40151:READ a$:a=VAL("&"+a$):POKE g+h,a:chk=chk+a:NEXT:IF CHK<>17239 THEN PRINT"Error in data":STOP [81]
30 CALL 40000 [14]
40 DATA 01,4D,9C,21,49,9C,C3,D1,BC,5E,A5,4D,9C,56,9C,C3,61,9C,C3,
9F,9C,C9,53,43,4E,53,D6,53,43,4E,4C,C4,00,21,00,C0,11.00,40,3E,16,CD,9E,BC,D2,9A,9C,21,28,B3,11,1E,00,3E,16,CD,9E,BC,D2,9A,9C,21,0C
[EA]
50 DATA B2,11,B9,00,3E,16,CD,9E,BC,D2,9A,9C,C9,3E,07,C3,5A,BB,21,00,C0,11,
00,40,3E,16,CD,A1,BC,D2,9A,9C,21,C8,B1,11,3F,00,3E,16,CD,A1,BC,D2,9A,9C,21,0C,B2,11,B7,00,3E,16,CD,A1,BC,D2,9A,9C,C9
[06]
```

TORTOISE

By Sean McManus

No, this has absolutely nothing to do with anatomical diagrams of shelled reptilians, before you ask.It does however share the Tortoise's most famous attribute, in that this superb proggie slows down Amstrad BASIC no end.This makes it much easier to spot where errors are occuring, as well as making gameplay painfully easy.Simply run the program, then type |TORT to slow BASIC down and then type |HARE to speed things up again, what else?

```
1 'TORT - A program to slow down Amstrad BASIC [71]
2 ' - Though the French may think it's wrong (-a linguistic jokette) [12]
3 ' (c) 1991 Sean McManus [73]
4 ' [74]
5 DATA
21a69c0681117b9ccdefbc21549c01589cc3d1bc00000000619cc3699
cc3759cc9544f52d4484152c521a09c110500010100c3e9bc21a09cc3ecbcc50
664:'Sorry about that line ! [1A]
6 READ a$:mem=&9C40:FOR g=1 TO LEN(a$) STEP 2:POKE mem,VAL("&"+MID$(a$,g,2)):mem=mem+1:NEXT:FOR g=1 TO 14:POKE mem,&C5:POKE mem+15,&C1:mem=mem+1:NEXT:POKE &9C9C,&10:POKE &9C9D,&E0:POKE &9C9E,&C1:POKE &9C9F,&C9:CALL 40000 [B7]
7 PRINT"New commands:":PRINT"|TORT - switches slow mode on":PRINT"|HARE - switches it off again.":PRINT:PRINT"(c) 1991 Sean McManus":PRINT [0D]
```

TRAIN JUMPIN'

By B.Fretwell

Now for a little fun, folks.Set this one going and it's all about timing, as you attempt to jump between the train carriages.Don't forget, the train is picking up speed all the time so, one false move and it could all be over.

```
10 SYMBOL AFTER 200:FOR i=200 TO 207:READ a,b,c,d,e,f,g,h:SYMBOL i,a,b,c,d,e,f,g,h:NEXT:MODE 0:ch=201:PAPER 0:CLS:PEN 11:FOR i=1 TO 500:PRINT CHR$(233);:NEXT:LOCATE 2,2:PEN 7:PRINT"USE SPACE TO JUMP.":PEN 8:LOCATE 2,4:PRINT"  JUMP=4 points":PEN 11 [F3]
20 ca=1:le=5:st=1:ga=1:ju=3:FOR i=0 TO 78 STEP 2:a=RND*8:PLOT i*2,0:DRAWR 0,148+i+a,5:PLOT 636-(i*2),0:DRAWR 0,148+i+a,5:NEXT:sc=5:li=5:PEN 13:WINDOW#2,12,17,1,1:PAPER#2,0:FOR i=160 TO 476 STEP 4:PLOT i,0:DRAWR 0,226+RND*8,5:NEXT:LOCATE 6,1:PRINT"SCORE}" [C5]
30 WINDOW#1,6,15,16,24:WINDOW 2,19,2,9:PAPER 6:CLS:PAPER#1,3:CLS#1:FOR i=1 TO 10:PEN#1,5:PAPER#1,10:LOCATE#1,i,5:PRINT#1,CHR$(204);:LOCATE #1,i,7:PRINT#1," ";:PAPER#1,4:LOCATE#1,i,6:PRINT#1,CHR$(205);:NEXT [65]
40 PAPER #1,3:PEN #1,0:LOCATE #1,6,ju:PRINT #1,CHR$(200);:LOCATE #1,6,ju+1:PRINT #1,CHR$(ch);:PAPER #1,10:PEN #1,5:PEN #2,7:PRINT#2,sc:ch=ch+1:IF ju=2 THEN PAPER #1,3:LOCATE #1,6,4:PRINT#1," ";:ELSE PAPER #1,3:LOCATE #1,6,2:PRINT#1," "; [81]
50 IF ch=204 THEN ch=201:DATA 0,0,0,56,24,56,16,56,56,56,16,48,
48,24,24,48,84,152,16,48,40,68,194,4,212,18,16,48,47,33,64,192,
255,0,0,62,34,62,0,0,255,195,129,129,129,195,255,255,60,66,90,
102,102,102,90,66,74,66,66,66,66,66,66,66 [75]
60 IF ga=6 AND ju=3 THEN FOR i=7 TO 0 STEP -0.125:SOUND 1,1000-i*100,1,i:NEXT:PRINT " ";6-li;"-LIVES LOST..":PRINT :li=li-1:PRINT "  LIVES LEFT-";li:PRINT:PRINT "  ON LEVEL-";le+1:PRINT:PRINT "  LOSE 20 POINTS":FOR pa=1 TO 3500:NEXT:sc=sc-20:CLS [12]
70 IF sc<0 THEN PRINT#2,sc:FOR i=100 TO 0 STEP -2:SOUND 1,i*3,1,7-i/16:NEXT:CLS:PEN 14:LOCATE 3,2:PRINT"NO POINTS LEFT":PRINT:PEN 9:PRINT"  PRESS {S} TO":PRINT:PRINT"  START AGAIN":le=5:ca=5:st=1:li=5:sc=5:ga=1:WHILE UPPER$(INKEY$)<>"S":WEND:GOTO 30 [C9]
80 PAPER#1,10:LOCATE#1,ga,5:PRINT#1,CHR$(204);CHR$(143);: LOCATE#1,ga,7:PRINT#1," ";CHR$(143);:PAPER#1,4:LOCATE#1,ga,6:
PRINT#1,CHR$(205);CHR$(143);:ga=ga+1:IF ca=0 AND le>0 THEN le=le-1:ca=5 [8E]
90 IF li=0 THEN CLS:PRINT" NO LIVES-SHAME":PRINT:PRINT"PRESS {S} TO START":FOR i=1 TO 100:SOUND 1,i,1,5:NEXT:GOTO 100 ELSE FOR pa=0 TO le*5:SOUND 1,1000,0.5,5,,,1:NEXT:IF INKEY(47)<>0 AND st<2 THEN ju=3:sc=sc+1 ELSE ju=2:st=st+1:sc=sc-2:IF st=3 THEN st=1 [99]
100 IF li=0 THEN WHILE UPPER$(INKEY$)<>"S":WEND:le=5:ca=5:st=1:
li=5:sc=5:ga=1:CLS:GOTO 30 ELSE IF ga=10 THEN ca=ca-1:LOCATE #1,ga,6:PRINT#1,CHR$(205):PAPER #1,10:LOCATE #1,ga,5:PRINT#1,CHR$(204):LOCATE #1,ga,7:PRINT#1," ":ga=1:GOTO 40 ELSE GOTO 40 [29]
```

RASTERBLASTER 2

By Chris Wootton

Quite some time ago, Mr Wootton sent us in a raster demo to show off the colours available on-screen.This time, he's gone a step further, recreating all 27 colours on screen in a stable picture.The ideal starting place for a demo perhaps?Save it before running, otherwise you'll have to reboot and lose the proggie!

```
1 'RasterBlaster Demo [71]
2 '(C) Chris Wootton 1991 [72]
3 ' [73]
10 MODE 1:BORDER 0:INK 0,0:INK 1,6:FOR a=&BF00 TO &BF2C [B3]
20 READ a$:POKE a,VAL("&"+a$):NEXT:LOCATE 4,7 [79]
30 PRINT"The new,Revised RASTERBLASTER Demo" [1E]
40 LOCATE 3,11:PRINT"with 27 colours on screen at once !!" [73]
50 CALL &BF00 [DE]
60 ' [F6]
70 DATA f3,cd,19,bd,f3,26,00,01,00,7f,ed,49,7c,e6,1f [CD]
80 DATA c6,40,06,7f,4f,ed,49,e5,01,40,00,11,00,00,21 [55]
90 DATA 00,00,ed,b0,e1,24,7c,fe,2c,c2,07,bf,c3,01,bf [CF]
```

DOWN TO D.J's LOCKER



In which Mr H gets the lowdown on that unfortunate saga, Titanic, amongst other goodies.

They called it a 'Night to Remember'. Well, as far as I'm concerned, if I'd been anywhere near the old Titanic when it went down, I'd much sooner forget it, if it's all the same with you.

I mean, I ask you! Who's idea was it to change the old distress signal from CQD to SOS overnight without telling anybody? That's just looking for trouble, isn't it?

Anyway, that's enough tattle about a sinking ship. Let's move on swiftly to the game of the same name, even though the similarities do end there.

The first thing you might like to know about this old gem, is that the password to the second level is S,U,S,I,E. Sounds good to me but, if that's not good enough for you, then why not cast your eye through the following collection of excellent multiface pokes for some more info on the Titanic blast, along with a host of others (see box below.)

Boot that little lot up with your multiface and you should be busy for hours. If you're not, I shall want to know why, and so shall Lee Rouane, who went to all the time and effort to dig up all the info for you. Well done, Lee.

Oh yes, before I forget, Lee also sent in a little something for Midnight Resistance fans. You might know this one already but, if you don't, try pressing CONTROL, which should blow up anything that takes more than one normal shot to kill. Very handy indeed.

Right, that takes care of that little lot. Now it's time to get back to Kirrin Island, for the final saga in the Famous Five adventure. Julian's been locked in the dungeon by Jake and the stranger! Shock, horror! What do you do? Ok, become Dick. Wait until you see a motor boat speed away from the island. Go to the entrance of the dungeons and untie the rope. The entrance to the dungeon will be blocked off with a heavy boulder. Go down the well and squeeze past the fallen slab. You are in darkness, so light the match. Now tie the rope to the ladder and drop it.

Next, climb down to the bottom and go west in darkness through the broken grille. You will now be in the circular chamber. Go north, southwest, southwest. Examine the rotting matting to find a hidden key. Take it and unlock the door. Open the door and go north to rescue the others. Take a gold bar. Soon, Julian will have an idea (clever Julian).

Go south and south again. Wait there until Timmy points north and growls. Wait again until Timmy stops growling. The stranger and Jake are now in the dungeon. Go north and close and lock the wooden door with the key, trapping both villains.

Leave the dungeons (the boulder will now be gone) and go back to find Uncle Quentin at Kirrin Cottage (George must row). George will tell Quentin about the villains. Give him

GAME	ADDRESS	POKE	EFFECT
Titanic	&41F9	&00	Infinite lives
Titanic	&3008	&00	Infinite Bullets
Stardust	&0E34	&00	Infinite lives
Blackbeard	&38DA	&A3	Infinite lives
Blackbeard	&4C3E	&00	Infinite bullets
Spitting Image	&36F	&C1	You always win
Colloseum	&68C4	&00	Infinite lives
Midnight Resistance	&1557	&00	When dead you advance a level
Kwik Snax	&29FE	&A7	Infinite lives
Score 3020	&68E9	&00	Infinite lives
Cabal	&2064	&A6	Enemy don't fire
Back to the Future 2	&6954	&00	Infinite time
Back to the Future 2	&7A4C	&00	Infinite lives
Impossaball	&9162	&00	Infinite lives
Impossaball	&A390	&00	Infinite lives
Time Machine	&733D	&00	Infinite lives

the gold bar to make him believe the story.Quentin will call the police.Wait until the constable arrives.The constable and Quentin will now follow you back to the island (George must row as usual).

Go back down into the dungeons and to the wooden door.Unlock the door with the key.The door will open and Jake and the stranger will enter.The police constable will arrest both of the nasty crooks and, at long last, you have successfully completed the adventure.

So there you have it.You should now be able to complete the Famous Five outing in style.However, I have left out a few vital clues, so as not to make it too easy for you.If any of you are still stuck, you know where to write.You never know, I might be feeling in a generous mood and fill you in with the rest of the clues.

Right then, without further ado, I believe it's time to enter the world of Smith and his amazing technicolour pokettes.You should know what to do by now, so type these in, save them, then bung them into your machine before you get gaming.Good luck!

The first offering this month is for the superb Buggy Boy outing on cassette.It does exactly what it says, giving you more time to get around the course and reach for the high scores.Here goes:

```
1 ' Buggy Boy  (tape)
2 ' By Graham Smith
3 ' More time
4 '
10 DATA 21,36,85,22,41,81
20 DATA 7c,32,7e,4e,c3,88
30 DATA 4c,21,ed,9a,22,75
40 DATA 9b:z=39661
50 FOR j=0 TO 18:READ a$
60 x=VAL("&"+a$):y=y+x
70 POKE j+z,x:NEXT j
80 IF y<>1963 GOTO 110
90 MEMORY z-1:LOAD"
100 CALL z+13
110 PRINT"data error
```

Got that one?Good, now it's the turn of the epic Italian Supercars.This time, you get both infinite lives and time, so you should have no excuse now at all.Get out there and get blasting.

```
1 ' Italian SuperCars
2 ' By Graham Smith
3 ' Infinite lives and
time
4 ' Tape - method 1
5 '
10 DATA 21,4a,3a,22,22,3b
20 DATA 2a,38,bd,22,29,be
30 DATA 21,37,bd,36,c3,23
40 DATA 36,21,23,36,be,11
50 DATA 00,bb,21,40,00,e3
60 DATA c3,e9,3a,af,32,c8
70 DATA 17,32,91,4f,cf
80 FOR j=0 TO 40:READ a$
90 x=VAL("&"+a$):y=y+x
100 POKE j+48640,x:NEXT j
110 IF y<>3714 GOTO 140
120 MEMORY 14900:LOAD"
130 CALL 48640
140 PRINT"data error
```

They're all pretty short and sweet so far, and the next one is certainly no exception, giving you invulnerability from ghosts as you traipse around Castle Master.Try this one for size and see what you think.

```
1 ' Castle Master  (tape)
2 ' By Graham Smith
3 ' No damage by ghosts
10 DATA 21,09,be,22,00,0a
20 DATA c3,c4,09,cd,1e,0a
30 DATA 3e,18,32,03,73,c9
40 FOR j=0 TO 17:READ a$
50 x=VAL("&"+a$):y=y+x
60 POKE j+48640,x:NEXT j
70 IF y<>1376 GOTO 100
80 OPENOUT"d":MEMORY 2499
90 LOAD"":CALL 48640
100 PRINT"data error
```

Graham's done the works on the next little offering, giving you infinite shields and energy, as well as offering shorter routes through the black holes in Wanderer 3D.Do you remember this little gem?I loved it and, with this helping hand on your side, you should be able to speed up your extra-terrestrial clean-up no end.

```
1 ' Wanderer 3D
2 ' Encore tape
3 ' Infinite shields
4 ' Infinite energy
5 ' Shorter routes
6 ' through black holes
7 '
10 DATA 3e,c9,32,4e,15,af
20 DATA 32,78,15,3e,05,32
30 DATA 06,47,32,18,47,32
40 DATA 24,47,c3,00,07,21
50 DATA e3,9f,22,31,a0
60 FOR j=0 TO 28:READ a$
70 x=VAL("&"+a$):y=y+x
80 POKE j+40931,x:NEXT j
90 IF y<>2138 GOTO 110
100 LOAD"":CALL 40954
110 PRINT"data error
```

Last, but by no means least, in this month's selection of ace pokettes, is something for Operation Hanoi, and a pretty nifty one it is too, giving infinite ammo clips, grenades and lives.Run it and get blasting.

```
1 ' Operation Hanoi (tape)
2 ' By Graham Smith
3 ' Infinite ammo clips,
4 ' grenades and lives
5 '
10 DATA f3,2a,09,00,22,1b
20 DATA be,21,0e,be,22,09
30 DATA 00,c9,f5,af,32,0e
40 DATA 8f,32,b3,8a,32,cf
50 DATA 8a,f1,c3
60 FOR j=0 TO 26:READ a$
70 x=VAL("&"+a$):y=y+x
80 POKE j+48640,x:NEXT j
90 IF y<>2851 GOTO 110
100 CALL 48640:RUN"
110 PRINT"data error
```

Well, there you go folks.I think we've just about run out of room for another month.Don't forget, if there's a particular game you need help on, or if you can help on a particular game, then get in touch with me at ACU, Sunnyside Cottage, Carluddon, St.Austell, Cornwall PL26 8TY.

I'm always happy to hear from you and, you never know, if you come up with anything spectacularly brilliant, we may even slip a goodie to you in the post.Talking of posts, did you hear about the man who was as deaf as one?No, nor did he!

Sorry, apologies for that, my jokes seem to be getting worse, so I think I'll take a couple of weeks off and do a refresher course somewhere.See you next month!

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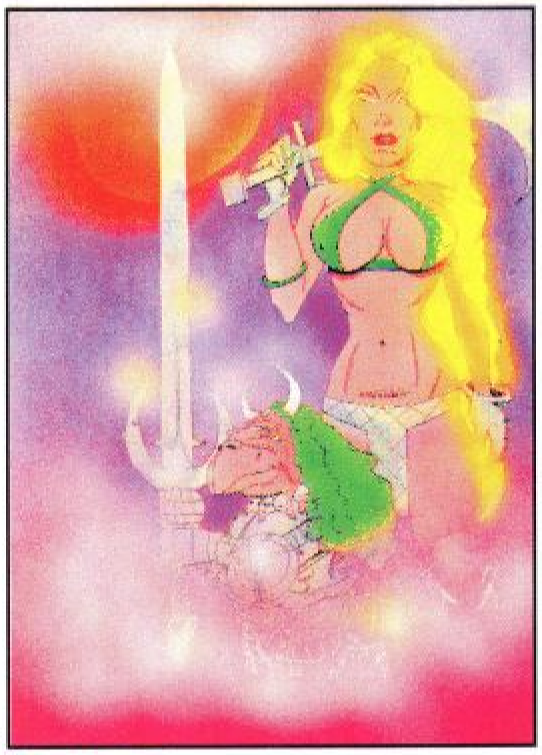
Name .... Signature..

Address ....

.... Postcode .... Tel No. ....

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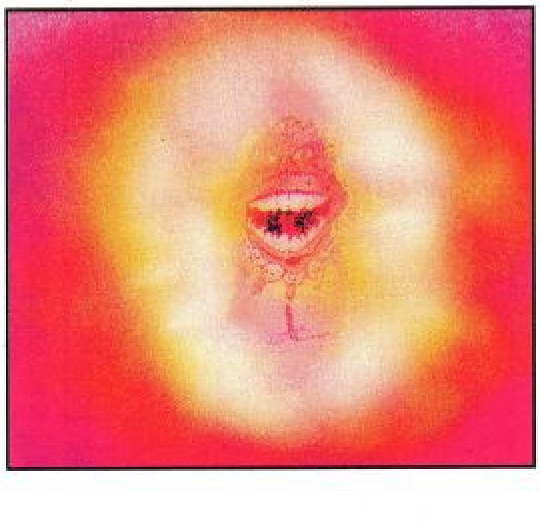


Welcome one and all to my Dungeon. Lots of activity to report on the adventure scene once again this month so without further ado, let's get started.

Beryl Williamson of AMAZON SYSTEMS has written to me about a book they publish that should be of interest to all of you involved in the wonderful pastime of adventuring. It is called COMPUTER ADVENTURES - THE SECRET ART and costs £4.95. This book deals with all aspects of writing adventures including presentation, ideas, plot, characters, testing and publishing. For those of you who are not interested in writing an adventure but just enjoy playing them, there is still plenty to interest you by giving you an insight into how the mind of the adventure author works. I obtained a copy of this book when it was first published and it cost £7.95 then. I would have recommended it at that price but at £3 cheaper it has got to be a bargain for those of you who wish to learn more about our favourite hobby. But what's this? Even more. Providing you order the book before the end of April 1992, you can deduct a further 75p off the price making it only £4.20. Cheques, Postal Orders, Access or Visa to: Amazon Systems, Merlewood Lodge Hill Road, Farnham, Surrey GU10 3RD.

You may remember that I mentioned in a previous issue that Joan Pancott was in hospital. Well I'm pleased to report that she is now home again and hopefully WoW Software will soon be in full swing once again. An early indication that this was so was the arrival of a disc containing two new adventures, namely THE ANGELICUS ANSWER by M &MJ Crewdson - a follow up to THE ANGELICUS QUESTION - and DANGER! ADVENTURE AT WORK by Simon Avery. Further details and prices can be obtained from WoW at 78 Radipole Lane, Weymouth, Dorset DT4 9RS and I will be reviewing them for you as soon as time and space permits.

Dave Havard has written this month with a question "Why have you never reviewed LORDS OF CHAOS?" Ah, this is a simple one to answer Dave, it's because I've never played it! Don't let me stop you doing it for us though... Oh, you have already.



LORDS OF CHAOS

by Target Games. Reviewed by Dave Havard.

Lords of Chaos is set in the mythical past, the days of wizardry, witchcraft, spells and spectres. There are three scenarios on the tape or disc plus two more available on an extra expansion kit. These include Your Own Homeland, The Slayer's Underground Dungeon, Ragaril's Puzzling Mansion and, on the expansion kit; A nest of Islands and The Tomb of the Undead. The game starts with your wizard alone and unaided, apart from his spell list. The spells enable you to create creatures to assist you or mounts to carry you. There are also various other spells available once you have collected the components and dropped them into the cauldron. The manual provides full details of all your abilities and spells and includes an excellent tutorial section for the beginner. You play against either a computer controlled wizard or another human player/s (up to four) and the aim of each scenario is to be the first to reach a portal which appears after a set number of moves and lasts until the end. Points are scored for each of the opposing wizard's creatures that are disposed of and for any treasure you collect. These points are multiplied and can be used to develop a stronger character for the next scenario. I found Lords of Chaos totally absorbing, both in the challenges it presents and the very open method of play.

Thanks very much Dave for that insight into the RPG side of adventuring. Dave has also supplied me with a whole host of playing tips for the above game so if any of you are stuck and would like me to print them in these pages, then please let me know.



The following good people who are experienced adventure players, have kindly offered to help any readers who are having difficulty with a particular problem. Please do not ask for full solutions and treat the "Scrollers" with due respect. Either telephone them ONLY during the times shown or include a stamped S.A.E. if you write to them.

Joan Pancott, 78 Radipole Lane, Weymouth, Dorset DT4 9RS. Tel: 0305 784155 - Any day - ONLY between 1pm and 10pm. Joan has updated her list of completed adventures but by now has probably finished lots more!

Acheton, Adventure Quest, Adventures of Zebedee Gonig, Aftershock, Angelicus Saga, Angelique, Apache Gold, Arnold Goes Somewhere Else, Atalan, Avon, Ballyhoo, Base, Bestiary, Black Knight, Boggit, Bored of the Rings, Brawn Free, Case of the mixed-up Shymer, Castle Blackstar, Castle of Skull Lord, City for Ransom, Classic Adventure, Colossal Adventure, Colour of Magic, Countdown to Doom, Crispin Crunchy, Crystal Theft, Cursed be the City, Dodgy Geezers, Dracula, Dungeon Adventure, D.A.A., Emerald Isle, Enchanter, Erik the Viking, Escape from Koshima, Escape from Prison Plant, Espionage Island, Fantasia Diamond, Flook, Forest at Worlds End, Fourth Protocol, Giant Killer, Gnome Ranger, Gremlins, Grue-Knapped!, Guild of Thieves, Heavy on the Magick, Helvera - Mistress of the Park, Heroes of Karn, Hitchhikers Guide, Hobbit, Hollywood Hi-Jinx, Hunchback, Imagination, Inca Curse, Infidel, Ingrids Back, Island, Jewels of Babylon, Jinxter, Kentilla, Kingdom of Hamil, Knight Orc, Kobyashi Naru, Lancelot, Leather Goddesses, Lords of Time, Lost Phirious 1,2&3, Magician's Apprentice, Message from Andromeda, Mindfighter, Mindshadow, Monsters of Murdac, Mordons Quest, Mountains of Ket, Mystery of Indus Valley, Necris Dome, Never Ending Storey, Not a Penny More, Nova, Orb Quest, Panic Beneath the Sea, The Pawn, Philosopher's Quest, Planet of Death, Price of Magik, Prison Blues, Project Annihilation, Project Volcano, Qor, Quest for the Goldon Egg-Cup, Questprobe 3, Red Moon, Return to Doom, Return to Eden, Rigels Revenge, Robocide, Scary Tales, Scapeghost, Seabase Delta, Seas of Blood, Simply Magic, Smashed, Smirking Horror, Smuggle's Cove, Snowball, Spiro Legacy, Sorcerer, Souls of Darkon, Spellbreaker, Spytrek, Star Wreck, Subsunk, Sydney Affair, Talisman of Power, Terrormolinos, Test, Time, Top Secret, Total Reality Delusion, Trial of Arnold Blackwood, Vera Cruz, Very Big Cave Adventure, Village of Lost Souls, Warlord, Wise and Fool of Arnold Blackwood, Worm in Paradise, Yarkon Blues & Zork 1.

Dave Adams, 49 Myers Gardens, St Helens, Merseyside. WA9 3YX. Dave is a fairly new name who is rapidly adding to his list of completed games and can assist you with:

Adult II, Argonauts, Atalan, Bewbews, Boredom, Cacodemon, Can I Cheat Death, Castle Blackstar, Doomlords I & II, Dungeon, D.A.A, D.A.A.W, Escape from Planet of Doom, Firestone, Golden Eggcup, Grue-Knapped! H.O.O.T, Jason and the Argonauts, Key to Paradox, Labyrinth, Lost Phirious I, Magician's Apprentice, Message from Andromeda, Mystery Mansion, Prison Blues, QuadX, Quest for the Golden Egg Cup, Rogue Midget, Scary Tales, Seabase Delta, Shymer, Spaced-Out, Spytrek, Stryptische, Subsunk, T.R.D, Tizpan, Use your Loaf.

Dave Adams has also supplied our hints and tips for this month. Take it away Dave:-

HOUSE OUT OF TOWN

Use the metal detector to find your way around the maze. Carry the birdcage when you confront the monster in the cellar and get him to say "cheese".

PRISON BLUES

Smash the panel in the chapel to help you get uplifted. Try opening the basket and kicking the jukebox.

USE YOUR LOAF

Make sure you have adequate head protection before flying the hang glider. Talk to the Butcher's assistant to get something for the tramp.

HEROES OF KARN

Water the plant twice to get the silver coin and take it with the mirror to the Gypsy camp.

THE ANTIDOTE

Examine the mural in the King's bedroom. It gives a clue to getting the dragon's scale. Examine the Gwark to find a rope.

SEABASE DELTA

Examine the thermometer and the sign near the lift to get the coordinates for the Tiger-fish missile. Unscrew the magnet from the Hi-Fi speaker.

MY LAMP WON'T WORK DEPARTMENT.

Two lost souls this month are appealing for our help and unfortunately I think that both games may be more of the arcade variety rather than true adventures and I am unable to help them. So if you know the answers to their problems, please send them to me and I'll put them out of their misery.

First up is Mr E M Thompson of County Monaghan, Eire and he would like to know "How to get through the green blocks placed underneath one in SOLOMAN'S KEY?"

Next is Mr P Tattersall (isn't everyone being formal this month) who is stuck in MAGICLAND DIZZY. He writes " I have managed to give the Cat to Good Witch Glenda and place the Poisoned Apple and a Leaf into the cauldron but am unable to find a Fire?" I have also given Dora Frog to Prince Charming. I have also killed the ghosts using the Power Pill and I used the Handle to collect the bucket from the well and filled it with hot water. But I'm afraid that is as far as I can get. Please Help!

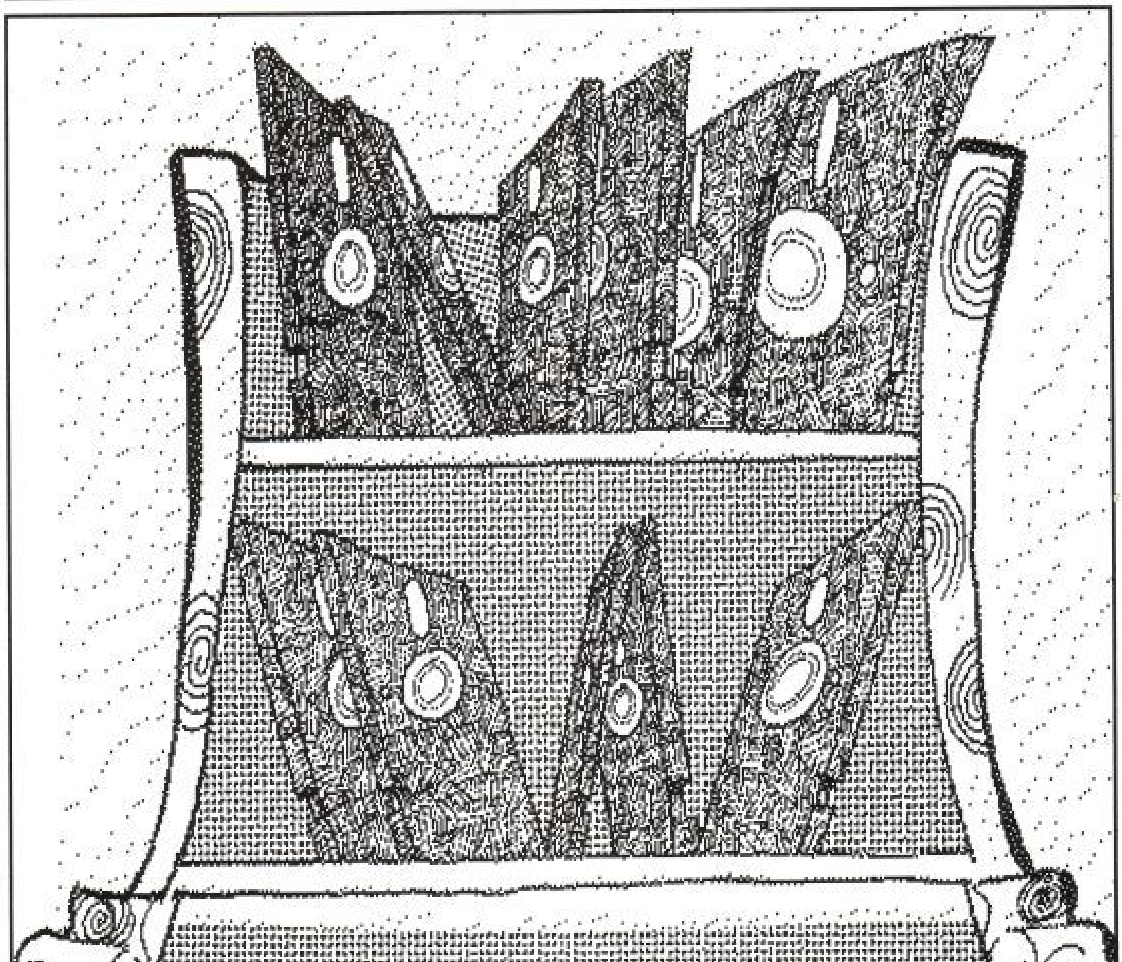
So there we have it. All suggestions gratefully received.

Until next month, happy adventuring. Please send all correspondence, hints, complaints, money, etc to:-

The Dungeon Master, c/o Amstrad Computer User, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY.

PD SCENE

A little clarification is called for in the Public Domain sector, as Uncle Bob explains.



Do you remember my piece a few issues ago when I asked "When is PD not PD?" Well it has produced this very interesting reply from Richard Fairhurst:

"Public Domain software isn't the most well understood concept but this is the definition of PD software as provided by Robot PD. As far as I know this is the most accurate position but there is not 100% agreement on this.

Public Domain software is software that you can copy legally, give copies to friends and you don't pay anything to the library or the author you got the program from. Any reasonable charges made by a PD library are only allowed to cover costs, such as buying discs for storage of new programs, the disc labels, telephone bills when a modem is used to collect new software, international postage when importing software, stationery, stamps, and printer ribbons. It seems that the definition of what constitutes a reasonable charge varies between libraries - I find it difficult to believe that some libraries require £2 per disc for the above. Robot PD only charges 45p but then it is run on a non-profit making basis.

PD programs cannot be used as part of a commercial program without asking and getting the original author's permission first. After all, she/he didn't put it in the Public Domain so that somebody else could make money out of it but rather so that other computer owners could enjoy using it. Of course you can alter the program for your own use. In general, it's ok to add bits to the program if you're going to give your altered version to other people but it is most definitely illegal to remove credits and/or replace them with your own.

"Almost PD" is mostly a Robot PD peculiarity. It's just like PD software but the following additional conditions apply:

a) The program must not be altered.
b) If a PD library, fanzine, user group, BBs, etc wants to distribute these programs, then written permission must be obtained from the author first".

Great stuff Richard, thanks very much for your reply. It certainly bears out with my own understanding of the true ideals of Public Domain. I found the part about altering programs interesting as this is one of my own pet hates. I am about to complain to a well know Public Domain library about a program that they have

adopted as their own and are claiming full copyright to it. Not that they had anything to do with the writing of it or anything as mundane as that you understand. No, they just feel that as they've done a bit of work by updating it that they can now claim it as theirs. Well as I'm one of the originators of this program and was quite content to see it go in the Public Domain, I feel quite offended when somebody tries to claim the copyright as theirs. This is just not on people.

Copy a program, alter it or update it as much as you like but don't steal somebody else's original idea and claim it as your own. The original author's copyright is legally his and should be credited as such.

And now it's time for me to correct an omission that I should have spotted months ago. Poor old (young?) David Long of DEMON PD has been suffering in silence for far too long until he could bear it no longer. The reason for his anguish? I'll let him explain:

"Thank you for reviewing my library in the January 1992 issue of ACU. One problem however, you forgot to put my name and address in the "Where to go" box!"

Well bless me, when I checked up he was of course quite correct. So many apologies David and I hope that any gremlins in the system have now been eradicated and your name will appear regularly from now on. He also sent me his latest PD list and his collection now totals 91 selections. One selection per one side of a 3" disc and they cost 50p each. Don't forget to include your own discs, jiffy bag and return postage. As a guide, 4 discs is about 50p.

Adam Shade from DARTSMA has been a busy lad (he tells me.) His collection has grown quite a bit since I last mentioned his library and is now up to selection number 76. Not only has he been avidly adding to his collection but he has been testing every piece of software that he currently offers to make sure that it will run on all machines. You may remember that DARTSMA was set up as the first PLUS Public Domain library but Adam assures me that all of his programs will now operate on all CPC machines of whatever persuasion, apart from some memory limitations. Good news me-thinks.

DRAGON NEWS - the bimonthly newsletter from ADVENTURE PD is now up to issue 3 and another fun read it is. For the cost of a S.A.E. this is really great value but Debbie Howard has been a bit disappointed by the lack of interest shown so far. So come on folks, try sending the Dragon Lady a SAE and find out what you have been missing. She is thinking about making it into a disc format magazine but personally I much prefer the paper version. Much easier to read as I'm typing at the keyboard. Is this what they mean by multitasking?

TUCK PD is a new Public Domain library just starting and Matthew Tuck has asked me to mention it to you all. To find out more, just send a S.A.E. for a stock list to: TUCK PD LIBRARY, 15 Ravencar Road, Eckington, Sheffield. S31 9GJ.

DRAGON PD, run by Lee Davies, have told me that they are reducing their prices to only 40p per disc, plus 20p P&P on all orders of less than £1. Sounds like a good deal. I do not have a stock list but you may be able to get one from: The Flat, 415 Whitehall Road, Bristol BS5 7BP.

As usual, I'll finish off with a list of the libraries who have contacted me and sent in examples of their programs and / or a catalogue. If you are a Public Domain library or you wish to recommend one or even a particular program, then I'll be delighted to hear from you. You can write to me at PD Scene, c/o Amstrad Computer User, Sunnyside Cottage, Carluddon, St Austell, Cornwall PL26 8TY.

ADVENTURE PD
10 Overton Road
Abbey Wood
London
SE2 9SD

DARTSMA PD Library
C/o Adam Shade
47 Kidd Place
Charlton
London
SE7 8HF

DEMON PD Library
202 Park Street Lane
Park Street
St Albans
Herts
AL2 2AQ

DEMON PD Library
47 Hilton Avenue
Hail Green
Birmingham
B28 0PE

EGERTON PD Library (Tape)
7 Linden Close
Stafford
Staffs
ST17 9TH

PENGUIN SOFTWARE
Ruxley House
28 Mount Hermon Road
Woking
Surrey
GU22 7UH

ROBOT PD Library
2 Trent Road
Oakham
Rutland
LE15 6HF

SOUNDS LIKE PD
6 Keyberry Park
Decoy
Newton Abbot
South Devon
TQ12 1BZ

The above librarians will be happy to send you a stock list but please include a stamped self addressed envelope.

For those of you with a Modem, you can try down-loading some free Public Domain programs from the CPC/CPM file areas on:-

PRESTON RBS 0772 652212 (24 hours)
ARCADE FANTASY 0533 376056 (8pm-8am)

The Techie Bit



Get to grips with Doc Watson's superb stereo sound amplifier for your Arnold

Most people would agree that the Amstrad CPCs have excellent sound-generating facilities for 8-bit micros, yet very few every really hear them in all their glory. Many users will have undoubtedly got used to the poor-quality, muted, muffled sounds that eminate from the puny internal speaker.

For only £7 all that can change; you can hear your Amstrad in true stereo and marvel at the improved frequency response which provides fuller sounds, rich in harmonics. Music and sound effects will be crystal clear, discover bass lines you never realised existed...yes, you guessed it - this month's Techie Bit details the construction of a simple stereo amplifier that plugs into any CPC.

Construction

The circuit is built on a small piece of stripboard and requires only basic soldering skills. Don't worry if you have not done much soldering before, as the components used are fairly robust and tolerant of the inexperienced constructor.

To begin with, trim off a piece of stripboard with 10 strips by 23 holes (in each strip). Lightly rub the copper tracks with wire wool in order to remove any oxide or grime that might have accumulated. The next step is to break the tracks at the seven places shown in figure 2. To form a break, simply place a suitably sized drill bit in the hole and twist until the surrounding copper has been removed and the track is cut. Remember that figure 2 is viewed from beneath the board!

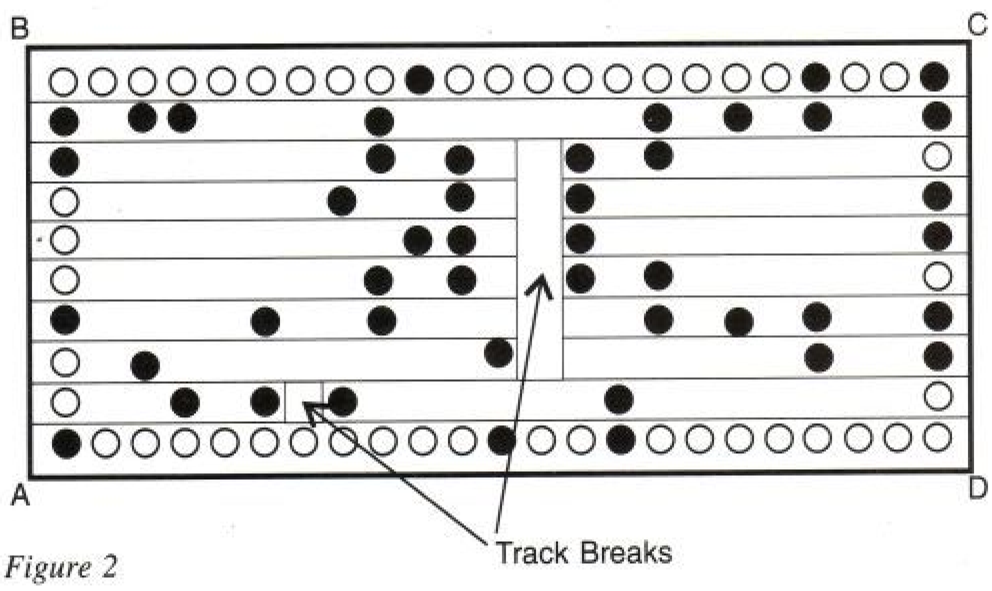


Figure 2

Flip the board over, and align it in accordance with figure 1 - the letters at each corner should help with this. Insert the DIL socket where IC1 is and solder it in place. Now solder the five wire links, followed by the two resistors R1 & R2, and capacitors C5 & C6. It does not matter which way round you connect R1, R2, C5 or C6. However, the alignment of C1, C2, C3, C4, C7 is crucial and you must ensure that the plus and minus terminals of each component are connected correctly. All of these five capacitors should have a large black stripe indicating which leg is the minus terminal.

Next solder lengths of insulated wire to the pins of the potentiometer RV1.

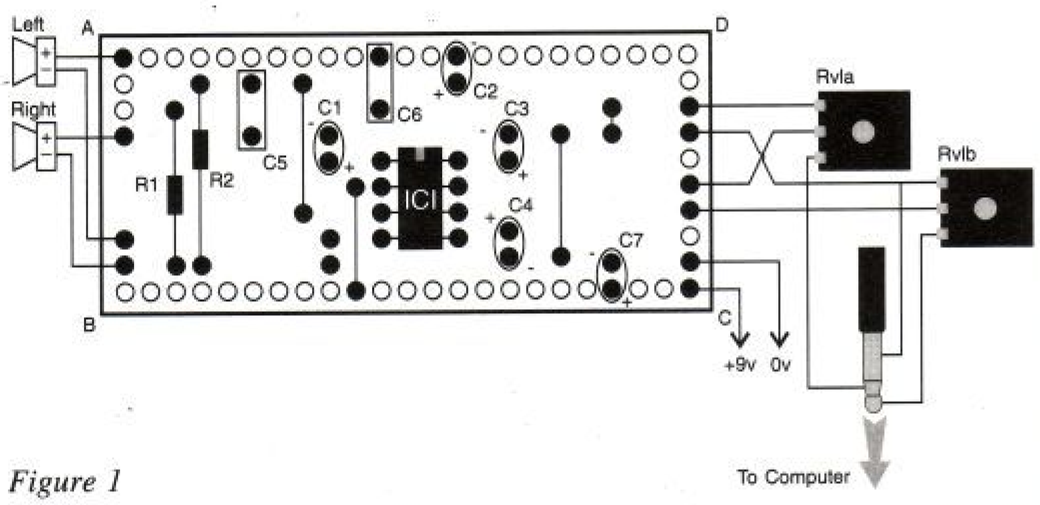


Figure 1

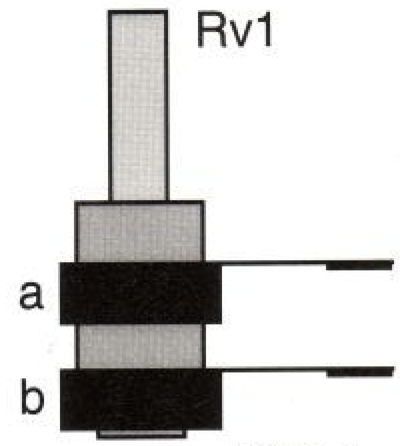


Figure 3

Component list			
Name	**Description**	**Qty**	**Maplin Code**
IC1	TDA2822	1	UJ38R
R1,2	Min Res 4R7	2	M4R7
RV1	Dual Pot Log 47K	1	FX11M
C1,2	PC Elect 470uF	2	FF15R
C3,4	PC Elect 100uF	2	FF10L
C5,6	Poly Layer 0.1uF	2	WW41U
C7	PC Elect 10uF	1	FF04E
Stripboard 1039		1	JP46A
DIL socket 8-way		1	BL17T
3.5mm Stereo Jack plug		1	HF98G
Knob		1	FE75S
Loudspeakers		2	YT25C

Maplin Electronic Supplies - Tel: 0702 552911 (Catalogue available at branches of W.H.Smiths)

Because this is a dual pot, figure 1 depicts each set of three terminals side by side. Figure 3 shows their positions in real-life. Note that there are two wires soldered to the left-hand pin on RV1b.

Now connect the two loudspeakers to the main circuit board. If the loudspeakers are to be placed many metres from the circuit board then it is probably best to use proper loudspeaker cable, otherwise ordinary wire will suffice. The speakers are the 1.5w, 8ohm impedance variety so you might well be able to use some you have already. The last remaining attachment to the board is the power supply. The type of connector you fit to the 9v and 0v pins will depend on the power source you wish to use with the amplifier. Initially a standard PP3-type battery could be used to test the circuit but this will soon run down. A far better solution is a small AC adaptor or battery eliminator (e.g. Sinclair Spectrum/ZX81 supplies, video game adaptors etc.) that can provide 9v. I use a 3.5mm jack socket as this will connect to virtually all the adaptors I have encountered.

Finally, gently push IC1 into the DIL socket making sure that the notch or dot at one end is aligned with the diagram. Check the circuit carefully before you insert the stereo jack plug into the computer's corresponding stereo socket (marked I/O on 464s), and switch on. Adjust the potentiometer to alter the volume of the glorious sounds that should now eminate from your CPC!

Having successfully constructed and tested your new amplifier, you may wish to improve its appearance. This can be done by attaching a knob to the pot and housing the entire circuit in a case (Maplin code LF01B is ideal). You could even use plug/sockets to connect the loudspeakers to the case.

Happy soldering and don't forget to tune in next month for more technical trickery!

Hex Education - part 7

By now, you should be fairly familiar with the registers A,B,C,D,E,H,L and understand how to move numbers between them and/or memory locations. All this is fine for 8-bit numbers (0-255) but what about larger values? After all, nearly all programs need to handle numbers greater than 255, even if it's only for keeping track of a player's high score.

The way the Z80 solves this problem is to pair up some of the existing registers, specifically BC, DE and HL. These 16-bit conglomerate register pairs are capable of storing values between 0 and 65535. Consider the register pair HL. In order for it to hold the number 12345, &X0011000000111001 in binary, H is assigned the first 8 bits (or high byte) while L is assigned the last 8 bits (or low byte). Thus H holds &X00110000 or 48, and L holds &X00111001 or 57. Therefore, in assembly language the instruction:

```
LD HL,12345
```

has exactly the same effect as:

```
LD H,48 LD L,57
```

'LD HL' is the more practical method as it takes less memory and less time to execute than the combination of the other. A simple formula to remember for coverting a 16-bit number into its most significant & least significant bytes is:

```
n = 16-bit number
High byte H = int(n/256)
Low byte L = n-(H*256)
```

Similarly, if you know the high & low bytes then the resulting 16-bit number is given by:

```
n = (H*256)+L
```

The other two register pairs, BC & DE, behave in exactly the same way as HL, although HL is perhaps the most useful of the three. B & D are the high bytes while D & E the low bytes.

Here are some simple assembler instructions that employ the 16-bit registers:

```
LD BC,w
LD DE,w
LD HL,w
LD BC,(addr)
LD DE,(addr)
LD HL,(addr)
LD (addr),BC
LD (addr),DE
LD (addr),HL
ADD HL,BC
ADD HL,DE
ADD HL,HL
```

where w = a 16-bit constant addr = any valid address

One point worth mentioning is that when you store a 16-bit register in a memory location e.g. LD (&7500),BC the low byte is stored first. In this case, the contents of register C would be placed at &7500 with register B in &7501. Not suprisingly, instructions such as LD DE,(&7500) take this into account so DE would end up being equal to BC.

Registers are undoubtedly more cumbersome when paired up, and the choice of instructions becomes more limited - for example, there are no transfer instructions such as LD HL,BC. To accomplish this you could either use:

```
LD (addr),BC LD HL,(BC)
```

or preferably the more elegant:

```
LD H,B LD L,C
```

They do however provide the possibility of manipulating addresses (which are necessarily 16-bits in size) using registers. More on this next time!



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Prepare to get bloated as the ACU team tackles Alternative's Ginormous Collection, goes for gold with the Codie's Quattro Fantastic and gets decidedly mucky on the incredible Double Dare blast.

BOMB ALLEY

GINORMOUS COLLECTION

You've never seen so many goodies in one go!





QUATTRO FANTASTIC

Trivia, gambling, darts and much, much more.

DOUBLE DARE

Join in as the wacky BBC game hits the small screens.



PLUS

More fabulous compilations than you can sink your teeth into, as well as all the latest budget blasts on the market. "I read it whenever I am able!"– Doris Gadget (Doc Watson's Mother-in-law).

TOP 20

1	(NE)	WWF Wrestlemania	Ocean
2	(NE)	The Simpsons	Ocean
3	(NE)	Robocop	Hit Squad
4	(NE)	Stunt Car Racer	Kixx
5	(2)	New Zealand Story	Hit Squad
6	(10)	Dizzy's Excellent Adventures	Code Masters
7	(8)	Magic Land Dizzy	Code Masters
8	(12)	Quattro Skills	Code Masters
9	(10)	Terminator 2	Ocean
10	(3)	Moonwalker	Kixx
11	(6)	Bubble Bobble	Hit Squad
12	(5)	Dragon Ninja	Hit Squad
13	(9)	Dizzy Panic	Code Masters
14	(NE)	Double Dragon 2	Tronix
15	(13)	Dizzy Collection	Code Masters
16	(NE)	Turtles – The Coin Op	Mirrorsoft
17	(7)	Altered Beast	Hit Squad
18	(NE)	Chase HQ	Hit Squad
19	(11)	First Division Manager	Code Masters
20	(14)	Turbo Outrun	Code Masters

Last month's position in brackets



G-LOC

Join in the suicide mission if you dare!

Now, I'm not usually one for offering advice on your latest purchse.No, it's up to you to learn from your mistakes along with the rest of us. Should you decide to boot up G-Loc and give the easy section a miss, however, then on your own head be it.

I'm not saying that the harder levels are impossible, but unless you get a feel for the action before it gets too hot, you could end up getting very, very frustrated indeed.

Take my advice and get gunning on the beginner's course first.Besides, once you've got the killer instinct against the slowcoaches, the higher levels should form a much more masterable experience, if you get my drift.

Ok, run this little beauty and watch as your experimental super plane does a 360 degree flip on take-off, before getting down to the serious action.

Your first task is simply to take out eight enemy jets, whose approach you can monitor on your on-screen radar system.Watch out for attacks on your tail, as you can pick up some pretty severe damage before you know what's happening.

Be careful, outmanoeuvre the enemy and get them in your sights as quickly as possible.Once there, let 'em have it, by releasing one of your excellent guided missiles.

Catch them just right, and the elimination of an enemy can be pretty impressive. Your own elimination is just as impressive, however, as you nose dive out of the sky in flames.

Now, we don't want that to happen, do we?No, so keep a check on your limited stock of missiles and use them carefully to take out the allotted number of enemy craft.



Complete the first level, and the number of targets increases, until you finally succeed and are considered worthy of the next set of suicide missions.

Moving on from the beginner's course, you can now get the feel of your powerful Afterburner to escape the unwanted attention of the enemy.Effecting a nifty, high-speed, loop the loop will totally dumbfound the opposition and, hopefully, leave you in the ideal position for a kill.

This is high-speed stuff, carefully designed to give you training in throttle control and use of the afterburner.After all, if you manage to survive through to the final set of confrontations, you will need all the skill you can muster to defeat the enemy.



If you think you have what it takes to meet the cream of the opposition in their lightning FX 85 Tailgaters, then you'd better get gunning and prove your worth now.Featuring some excellent graphics, as well as some stunning sound effects on the later stages, this is one blast not to be missed when it hits the shelves.

Jim Johnson

ROUND-UP

NAME	G-Loc		
FROM	US Gold	PRICE	Disc £15.99 Cassette £10.99
90%	82%	90%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



QUATTRO FANTASTIC

Four great new outings on yet another Codies' Quattro bash.

Yep! Those canny people from Code Masters have done it again. This time, the world of gambling and trivia comes to the fore, with four superb offerings to set your eyes alight.

First up is the excellent Fruit Machine Simulator. Ok, so it's been around for a few years, but that doesn't detract from the gripping gameplay.

Starting off with just one and a half quid to your name, the idea is to make the most of the mega-holds and the skill chances to boost your spending power.

Play wisely, and you could end up well in the pink. You'll need to be quick on the gamble button however, if you want to take the high prizes. Featuring all the regulars of the real thing, you can go for nudges, cashboxes, skill runs and loads more on your way to making a fortune.



Unfortunately, like all simulators, you don't end up with any hard cash at the end of the day, so don't worry if you bomb out once or twice, as you can always start again!

If darts is your game, then step up to the oche and be prepared to take on some truly amazing opponents in Wacky Darts. There are humanoids, barbarians, aliens and even drunkards to choose from, with a choice of straight 501 darts, or round the clock races.

Getting to grips with the throwing style may take some time but, once mastered, you're going to keep coming back for more with this one.

So you think you're smart? Well give Pub Trivia a try then. Guaranteed to sort out the men from the boys, use your wits to answer all the questions on the first quiz trail, before going on to earn some dosh on the money grid.

Remember, you only start out with a miserly 10p, so get smart and make sure you get in on the cash prizes. With a host of extra question sets included, this one should keep you busy for weeks.

Last up in this epic collection is the ultimate Monte Carlo Casino bash. Take your pick from Poker, Roulette, Blackjack, Craps and the incredible jackpot machine with a staggering $1,000,000 top payout!

Guaranteed to hook you from the very start, you'll soon realise how easy it is to lose a fortune in less than five minutes!

All of these games are presented in the usual excellent Codies' style, with great graphics and sound effects and, for the price, the Quattro Fantastic collection has to be on your shopping list for the very near future.

Jim Johnson

ROUND-UP

NAME	Quattro Fantastic		
FROM	Code Masters	PRICE	Cassette only £3.99
88%	78%	86%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

KIDS' PACK

All of your playtime favourites have arrived in one big bundle.

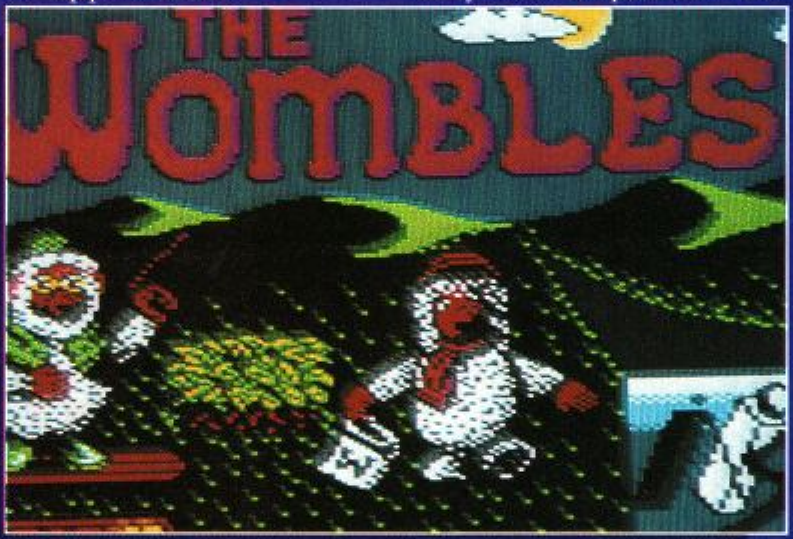


If you think this little collection is going to be child's play, you'd better think again.Most of the excellent offerings on this collection have both easy and hard versions, for the young and not so young.

Pick carefully which version you want to play, then get going for the high scores.

To start with, how about helping Postman Pat to deliver his assortment of mail around Greendale.Finding Mrs Goggin's post office is your first task, after which you must whizz through the village, timing your deliveries to perfection by pressing fire as you pass the flashing houses.

Watch out for oil slicks as you progress, and be sure not to knock poor old Miss Hubbard off her wobbly bike in your rush.This one is great fun for both young and old, and has to be seen to be appreciated.



Izzy wizzy let's get busy!You'd better if you want to help Sooty and Sweep clean up the house before Matthew returns.You see, Sweep left the door open, letting all the bugs in, as well as leaving his dirty bones all over the place.

As a one or two player game, you must pick up the bones, avoiding the creepy-crawlies at all times, and give them to Soo to take away.On your own, as Sooty or Sweep, this is excellent but, as a two player blast, as you compete to find the most bones, this is an absolute must.

Count Duckula has gone to the Pharoahs in the next item in the collection.Hunting for the strange and magical Sax, you must take on the role of Duckula and search the pyramid for the ancient saxophone.This is no picnic, however, as the mummies and the wacky Crow brothers are out to stop you at all times.Use your wits and find the sax before sunrise, or it's all over.

Remembering you're a Womble will help you out on the next offering, as you race against time and Wellington to find litter, special items and a copy of The Times for Uncle Bulgaria.This is a hilarious offering, guaranteed to keep you glued to the screen.

Before we run out of space, there should just be room to mention the last great offering on this collection, the epic Superted!

Spotty's been kidnapped and only you, using your special powers, can get him back from the evil Texas Pete and his cronies.Use your powerpunch to do away with the henchmen and, when you get to the end of the first level, you'll need to be quick to dodge the swipes of the skeleton guardian.

If you manage to defeat him, it's off into space on the way to the final showdown with tricky Texas Pete.Good luck Ted, Spotty depends on you!

What more can I say, this collection is a must for the younger gamesters and it could even give the more experienced trigger finger a run for its money!

John Taylor

ROUND-UP			
NAME	Kids' Pack		
FROM	Alternative	PRICE	Cassette only £12.99
88%	82%	90%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

DOUBLE DARE

The messiest game show of them all comes to the CPC screen at last.

This is it! The big one. If you don't watch your step here, you're going to get well and truly gunged! Those of you who glance at the telly on a Saturday morning, will no doubt know the format of this incredibly popular game. If you don't, listen carefully.

As with the TV game, your first task is to get through a gruelling round of multiple choice questions and answers. If you know the answer, great. If not, then Dare the other team to answer it.

If they don't want to, then it's back to you, either to give an answer or take on one of the infamous challenges. What are they? Well, firstly, you must rearrange the jumbled pieces of a square, to make up the face of a famous celebrity.

If you have to face a second challenge, then you must follow the sequence of lights, as they flash on the screen, like a Merlin machine, getting the correct sequence to take the points.

The third challenge involves lifting rings from one peg to another, without putting bigger rings on smaller ones.

Yes, this is pretty tricky stuff but, don't forget, Double Dares are worth double points, so stick in there and do your best.

Don't worry if you run out of questions either, as there are plenty of replacement sets to be loaded, extending your playing power no end. Ok, so you've managed to successfully negotiate the first round of Double Dare, now comes the messy part. Again, just like the TV game, your next task is to take on the Assault Course.

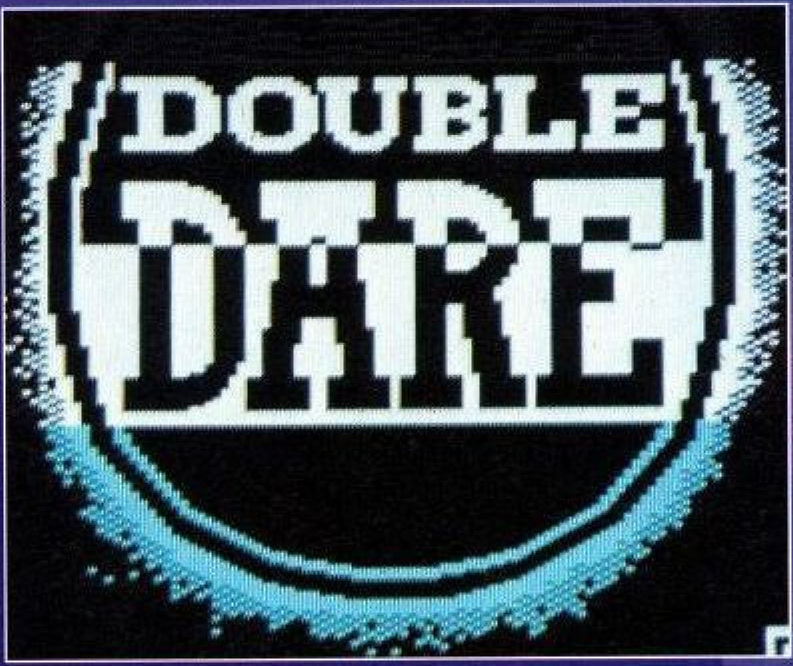
Racing through a host of objectionable obstacles, you must keep your eyes well and truly peeled for the ten flags, which are lurking in the most unlikely of places.

Try everything and look everywhere, as you need to collect all of the flags within the time limit to succeed. One place you don't need to look is in the Gunge Tanks. These crop up just where you least expect them and, as you can imagine, falling into one is not very advisable.

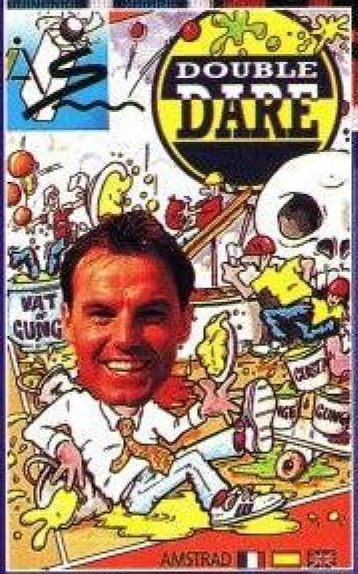
Not only do you get well and truly gunged up, but you lose valuable seconds to boot. You have been warned.

If you have never witnessed the spectacle that is Double Dare, then you don't know what you have missed. As a screen recreation of the real thing, this little blast does exceptionally well. Ok, so you don't actually get gunged yourself but, by capturing the true atmosphere of the race against time, this is one blast you won't put down in a hurry. Well done Alternative.

Jim Johnson







ROUND-UP			
NAME	Double dare		
FROM	Alternative	PRICE	Cassette only £3.99
86%	83%	89%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

THE GINORMOUS COLLECTION

You what? 20 epic blasts in one go? You'd better believe it!



If you haven't fitted out your 6128 machine with a tape recorder by now (yes, that includes you Plus owners as well, following WAVE's brilliant offer), then you'd better run out and do so now, otherwise you're going to miss out on one of the biggest and best collections of all time.

What am I talking about?You bet, Alternative's stunning compilation of 20 of the best all time blasts on the CPC screen for your delectation.

Basically, if you haven't heard of, let alone played, at least half of the goodies on offer here, then you must have had your head stuck in a pillowcase for the last five years!

However, that is not the problem with this gargantuan offering.What is, is where on earth do you start? To say that there is something here for everyone would be a major understatement.Just get hold of this blast at all costs, and then check through the manual to see what takes your fancy.

Do you like footie?Yes, I thought you might and, whether it be the American, English or Australian Rules variety, or even the oval rugby variety, there's something here for you.

If it's Aussie rules, then this little football simulator will allow you to get a real feel for the game, taking part in some crunching league challenges to go for the Championship.

Footie management and playing on the domestic scene is well and truly wrapped up in the Soccer Boss and Soccer Challenge offerings respectively, giving you the chance to try out for your favourite team, as well as take them to the top of the ratings in the European Cup.

Grid Iron fans must get to grips with all the moves in Grid Iron 2, which sees you taking on the best of the rest in a full season of the most popular American game, while Rugger fans get the management treatment in the excellent Rugby Boss outing.

Clear so far ?Good, now it's time to take care of the simulation fans, and boy, have we got a treat for you!Red Arrows, Pro Mountain Bike Simulator, Run for Gold and Rally Driver are on offer for you lot.

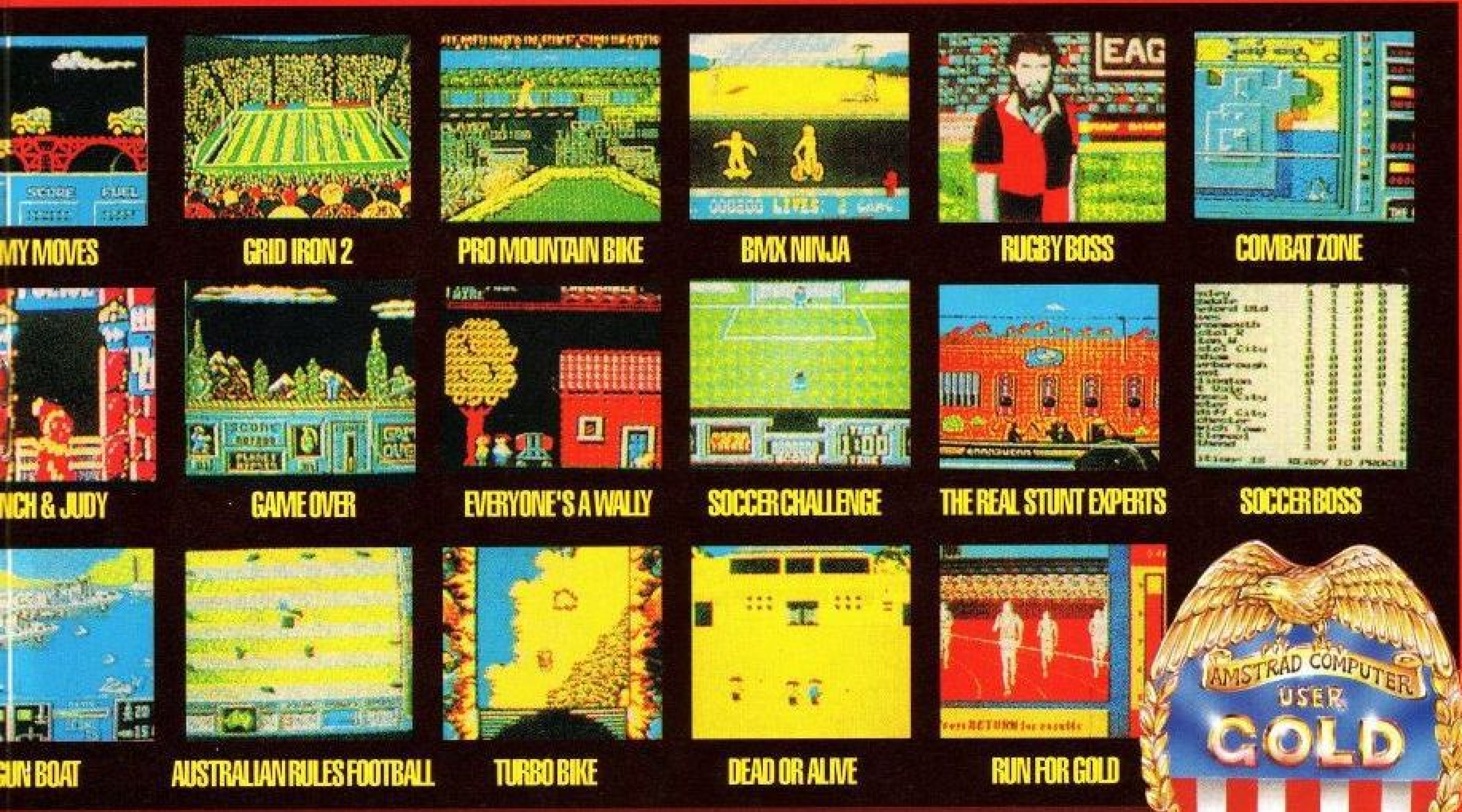
Have you ever wondered how those ace pilots manage to keep those incredible formations, and perform those superb stunts? Well, here's your chance to find out.Set over two sections, the first, and all-important, feat, is to practise the many loops and turns that make up a Red Arrows display.

Remember, you are in control of one fast moving lump of metal, where the smallest mistake can lead to catastrophe!Master the formations and you must take the role of Red 8, following the leader's instructions to the letter, in a full aerial display.Awesome!

For the more down to earth, why not give the excellent Rally Driver, or Pro Mountain Bike Simulator a whizz.Both capture the true atmosphere of the respective sports, jam-packed with obstacles, spills and thrills, guaranteed to get you sweating after the first outing.

If you fancy a little Olympic training, then Run for Gold is the game for you, giving you the chance to train two runners to compete for Olympic gold in the three middle-distance races, the 400m, the 800m and the ever-popular 1500m.

Try the first game option for best results, where you control the pace of your race, while the computer takes control over the steering.In the second option, you get to steer as well but, be warned, this is very tricky, so get used to the pace first before you progress.This really is a superb simulation, with excellent sound effects to build up the big race tension.



ARMY MOVES · GRID IRON 2 · PRO MOUNTAIN BIKE · BMX NINJA · RUGBY BOSS · COMBAT ZONE
PUNCH & JUDY · GAME OVER · EVERYONE'S A WALLY · SOCCER CHALLENGE · THE REAL STUNT EXPERTS · SOCCER BOSS
GUN BOAT · AUSTRALIAN RULES FOOTBALL · TURBO BIKE · DEAD OR ALIVE · RUN FOR GOLD



Right, let's move on to the action stakes.If you can get to grips with the excitement contained in this superb collection, then you're a better man than I!

How about a blast at some of the all-time classics?There's Game Over for a start, which sees you taking on the role of the gallant Arkos, one time servant of the tyrannical Empress Gremla.Set over two epic worlds, this is one extra-terrestrial shoot-em-up that'll keep you on the edge of your seat from the very start.

Here's another one you must have heard of:Gunboat.A test of nerves and reactions as you penetrate the enemy waterways to basically blast every opposition installation you come across.

There are four main bases to destroy, but don't let that upset your firing rhythm in this all out blast-em and run outing on your very own Gunboat.

Ever tried Strike Force Cobra?Well, the world is being threatened by an evil nuclear blackmailer, known simply as the Enemy.To counter the threat, the special Cobra strike force is created, a team of four hand-picked experts which you must control to break into the Enemy's fortress and thwart his plans.Blistering action and more nerve-tingling excitement than you can handle are guaranteed in this epic classic blast.

What else?Oh, just a couple of totally excellent blasts like Combat Zone, BMX Ninja, Dead or Alive, Army Moves and Turbo Bike.

Had enough yet?You have?Well tough luck, as there are still a few wacky offerings left that should provide a little light relief from the hard blasting, though they are not pushovers either.

Everyone's a Wally brings out the best in fun gaming, in a superb arcade adventure, as Wally and his family hunt for the missing combination to the safe to get to their wages.An hilarious multi-role outing that'll glue you from start to finish.

For danger lovers, there's a chance to play at being The Real Stunt Experts.You take on the role of Fred MacMuscle, the world's greatest stuntman, in his efforts to get everything just right for his latest blockbusting movie.Tough stuff!

How about a little seaside mockery, in the excellent Punch and Judy outing, where you, as Mr Punch, must put the booth together, find the cast and star in the performance.It's all in a day's work, but what a day!

If you can't find anything to suit your needs in this little lot, then you need serious attention. This has to be the biggest and best collection in terms of value for money, that has ever hit the streets and, if it doesn't persuade you to run out and get a datacorder today, then nothing else will.Totally brilliant gameplay and the best boost to your playing power you can get.

Jim Johnson

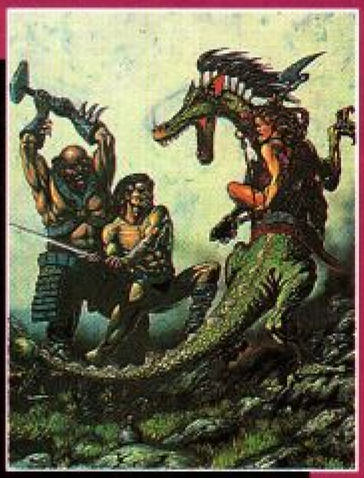
ROUND-UP

NAME	Ginormous Collection		
FROM	Alternative	PRICE	Cassette only £14.99
88%	87%	98%	JACKPOT
GRAFFIX	SONIX	PLAYABILITY	VERDICT

TNT2

Yet another blistering collection of high speed blasts for your persual.

If you like your action on the tough side, then you could do far worse than pick up a copy of this superb compilation.Featuring five winners in their own right, this should keep you busy well into the small hours.



Kicking off the action is the high speed aqua-blast Hydra. Taking on the role of the futuristic,



turbocharged courier, you must carry important documents across the waterways of the western American Coast.Sounds easy, but the terrorists out there are certainly not going to let you get through without a fight.

All in all, there are 31 brilliant levels, each containing nine dangerous missions.You will be briefed, but nothing will prepare you for the brutal world you are about to enter.



Next up is the superb Escape from the Planet of the Robot Monsters, which sees you and a friend kicking butt to save the lovely ladies from a fate worse than death in space.Great graphics and absorbing gameplay make this one a must for shootie fans, as you race against time to destroy the robots and rescue the damsels.A real winner when it came out in its own right, this blast has lost none of its freshness and is still every bit as fun as it was the first time around.Remember, falling off the ledges could cost you valuable time, so keep on your feet, watch out for the host of different adversaries on each level and destroy the computer equipment as you go to earn bonus points.

Skull and Crossbones was another winner when it hit the streets last year.Well, it's every bit as good on the collection, as you battle it out against the evil sorceror's henchmen, in a desperate bid to get back your bootie.As a one player game it's great but, as a two player game, Skull and Crossbones really brings out the worst in you, as you fight it out amongst yourselves for the gold.

Epic action and more than enough bad guys to keep you busy for hours.Be warned, as you approach the sorceror's lair, things get decidedly hot under the collar, so make sure you're holding your sword in the right direction and get swiping for glory.After all, all your life's savings are at stake here! If speed is more to your liking, then you'd better climb aboard your souped up motor and get gunning in Badlands.You'll have to be good to survive this outing against the odds, so prepare yourself and race hell for leather in this superb outing. Last up on this superb set of games is the futuristic Stun Runner blast.Get underground and climb aboard as you race against time to pick up the green stars.It's all about completing the tunnel networks here, in this crazy cult sport of the future.

A brilliant selection of original Tengen/Domark blasts which are guaranteed to provide hours of fun, even if you have got a couple of the titles already.If you know what's good for you, you won't miss out on this lot when it hits the streets.

John Taylor

ROUND-UP

NAME	TNT2		
FROM	Domark	PRICE	Disc £19.99 Cassette £14.99
89%	83%	92%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

TOO HOT TO HANDLE

Get ready for some red hot action in this excellent collection of all-time classics from Ocean.

Kicking off is the superb outing of Golden Axe, taking in the once peaceful land of Yuria, now defiled and lorded over by the evil minions of Death Adder. Only the bravest of the brave can save the kidnapped king and his beautiful daughter and, who can that be? Yes, you and maybe a friend as well.





Action, adventure and a whole lot more in one package.Who's complaining?

There are four characters to choose from in this original blast, ranging from the barbarian Ax-Batler, to the Amazon Warrior Tyris-Flare, each of whom has grudge enough against Death Adder to last a lifetime.

The slow battle through the woods, Turtle Village, Eagle Island and finally, Death Adder's Castle, is plagued by a host of vicious assailants. The going is certainly tough, but the gameplay is superb, good enough to keep you coming back for more until your quest is finally achieved.



If Ninja action is more your style, then take on the role of Joe Musashi and go get the evil Sauros and his henchmen, as revenge for the needless killing of one of your students.

Taking your trusted hound Yamoto with you, you must not only take out the bad guys, but you must defuse all of the bombs Sauros' men have laid around the metropolis. Fail, and the US shuttle could be in big danger. You have been warned, go out and get chopping now in this excellent example of oriental artistry. Moving on to the slightly more obvious and, shall we say, less subtle, forms of physical violence, Arnie's back in town in the superb Total Recall offering.

Closely following the plot of the film, it's up to you to find out who you really are, and why you keep getting recurring nightmares about suffocation and Mars. Take up the battle against the evil syndicate, moving from Earth to Mars and, ultimately, free the Mars dwellers from enslavement to succeed at this well conceived blast. Plenty of action and great graphics to boot.

For our final outing, why not put your pedal to the metal and go for the championship in Super Off-Road Racer. You'll find all of the spills and thrills of the real thing here, careering around in your turbo-charged speedmachine. Superb graphics make a real atmosphere here and, basically, if you like race simulations, then you won't go far wrong with this one.

There you are, yet another collection of classic blasts which, whilst being great fun and good value for money, can't help but leave you thinking :"what about a few new games?"

Jim Johnson

ROUND-UP

NAME	Too Hot To Handle		
FROM	Ocean	PRICE	Disc £19.99 Cassette £15.99
82%	78%	87%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

We've had to curtail the budget blasts this month, to make room for some of our new features but, never fear, there will be more next time out.

FIREMAN SAM

Here's a little outing that's an absolute gem for the young at heart, though it's no picnic for the more advanced player either.

Take on the role of the well known character Fireman Sam, the hero next door, and rush around the streets of picturesque Pontypandy, performing all the tasks within the time limits.

First of all, you must douse the flames at the burning house, speeding to the scene in Jupiter, the fire engine, and cleaning up before your time runs out.

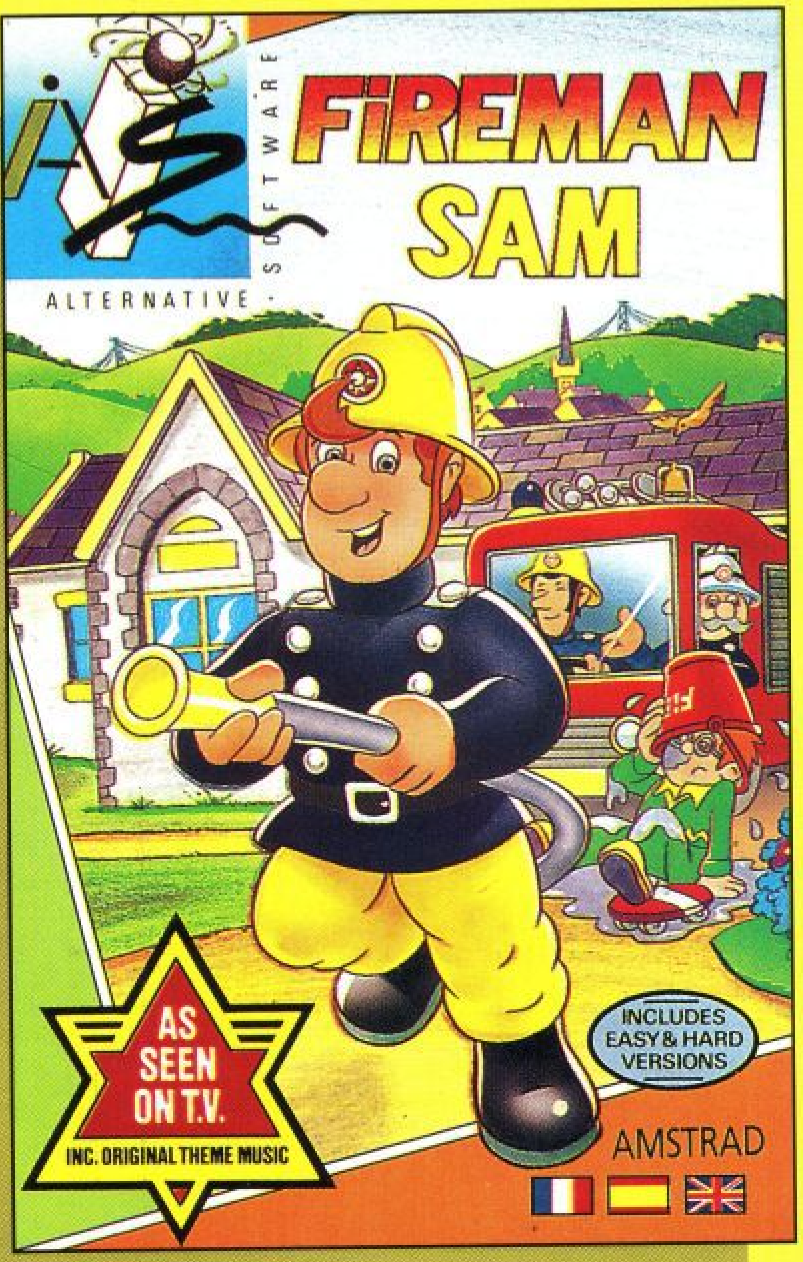
Next, it's off to rescue Naughty Norman, who's got his head stuck in the railings.Here, you must enlist the help of your friends to pull the bars apart in double time.

Manage that, and it's up the ladder, scaling the front of Price's Shop to rescue a trapped kite.Be careful to avoid the obstacles and remember to keep your balance at all times, or things could get very hairy.

Your last duty, is to race around Pontypandy, picking up various lost items.Again, the clock is against you, so put your foot down.

Fireman Sam is a brilliantly devised outing, featuring superb graphics, and guaranteed to bring a smile to your face.If you don't perform all your tasks, then Fire Officer Steele will be waiting at the station to issue you with a warning.Three of these, denoted by the envelopes in the status screen, and your career is all over.You have been warned.

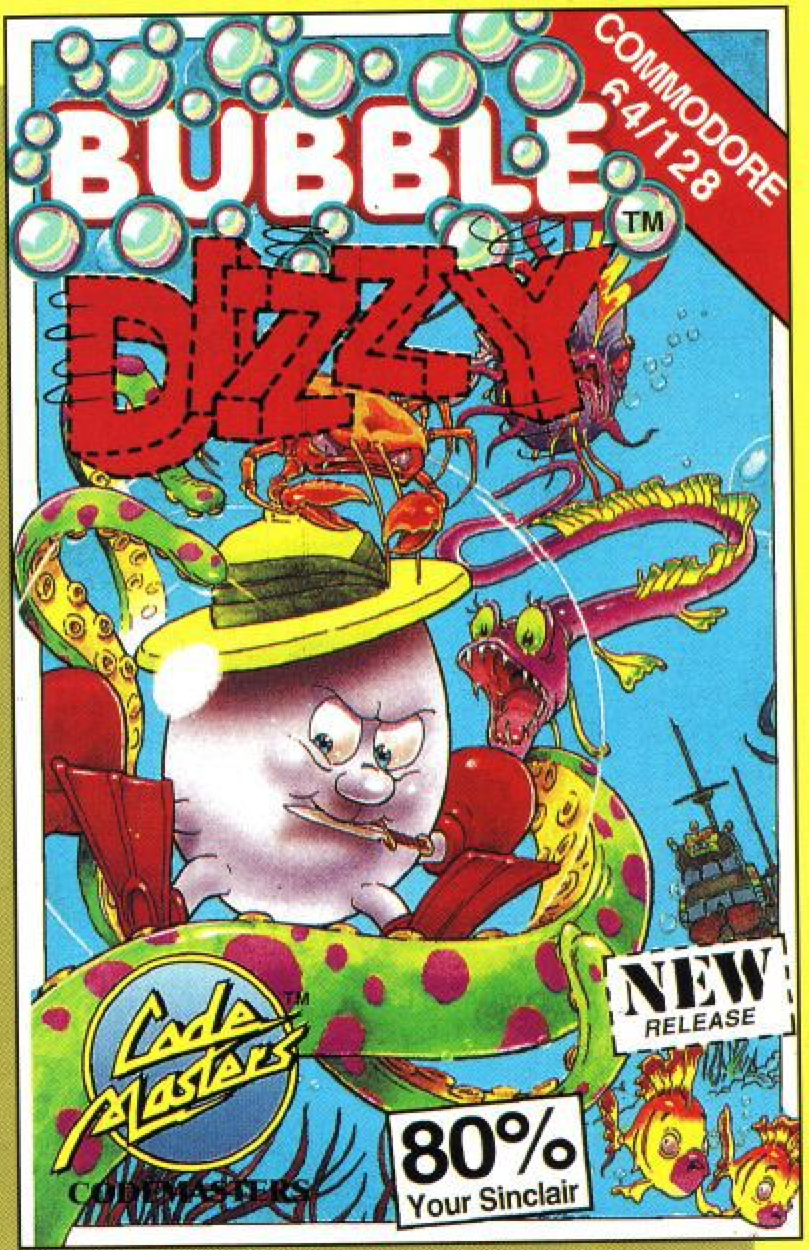
If you like your gaming with a lighthearted touch, then this one is a must.



BUBBLE DIZZY

Look out!Dizzy's about again!Here's the latest bash that looks set to be every bit as successful as all of its predecessors.What's Dizzy got himself into now?Well, there he was, taking a leisurely sea journey to visit his girlfriend Daisy, to give her a glittering pearl necklace, when everything goes horribly wrong.

The ship he is on turns out to be a pirate ship, captained by none other than the infamous Captain Blackheart.To cut a long story short, Dizzy is made to walk the plank and ends up deep down in the mysterious ocean caverns.



Of course, this is where you come in.The aim of the game is to get to the surface, double quick, by standing on bubbles and leaping from ledge to ledge.

Along the way, see if you can't pick up enough pearls to replace the necklace stolen by Blackheart and win Daisy's eternal love.

Beware, danger lurks in every cavern in this blistering blast from the Codies' stable.Great fun, great graphics and sound effects, and a guaranteed success with Dizzy fans and others alike.Don't miss it!

Jim Johnson

Fireman Sam
Alternative
£3.99
92%

Bubble Dizzy
Code Masters
£3.99
90%

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THE FINAL PRINTOUT.

Graphics guru Glynne Davies wraps up the Easydraw series with a handy print routine.

No graphics program is complete without a print out option to print your masterpiece, so that you can hang it on the wall (or send it for publication in ACU).This routine prints out the graphics to the printer sideways on, giving a drawing of about the same size and shape as the screen.This printer dump was designed for the Amstrad DMP2000 printer, but should work with any Epson type printer;I have used a 24 pin Star printer successfully.

Considerations.

1).Each vertical line on the screen from the left must be checked for lit and unlit pixels.

2).The status line must be removed before printing takes place.

3).Two pins on the printer are to be used to give the best ratio.

4).The printer has to be set to bit image mode and reset afterwards.

Variables.

i The increment down the screen.

tst The test value tst=0 pixel not lit tst=1 pixel lit.

A look at the listing.

Line 400 CTRL+P for a print out.Ensure the printer is connected before you use this option and as a precaution, save the picture to disc or tape before printing.

Line 26010 Set the printer width to 255.This allows numbers greater than 127 by repeating.

Line 26020 Set the line feed on the printer to 3/216 of an inch.

Line 26030 Start loop to check screen columns.

Line 26050 Start loop to check down the screen.

Line 26060 Test each pixel for colour.If the colour is 1 then set tst to 3.When colour is 0 tst also is set to 0.

Line 26070 Fire the two pins of the printer four times.

Line 26100 Move the printhead back to the start of the next line and move down 3/126" to the next line.

Line 26120 Reset the printer to normal.

The Listing (see below)

```
400 IF INKEY(27)=128 THEN CLS:GOSUB 5070:GOSUB 11000:GOSUB 26000:GOSUB 11000:GOSUB 12000:GOSUB 5070:REM Print screen option
26000 REM print out
26010 PRINT #8,CHR$(27);"@":WIDTH 255:REM Reset printer and set width
26020 PRINT #8,CHR$(27);"3";CHR$(3);:REM Set line feed to 3/216
26030 FOR x=0 TO 639
26040 PRINT #8,CHR$(27);"*";CHR$(2);CHR$(32);CHR$(3);:REM Bit image mode
26050 FOR i=0 TO 199
26060 tst=TEST(x,i*2)*3:REM If a point is lit tst=3 or tst=0:tst=3 is two pins i.e. 00000011 in binary =3
26070 PRINT #8,CHR$(tst);CHR$(tst);CHR$(tst);CHR$(tst);
26080 REM PRINT #8,CHR$(tst);CHR$(tst);
26090 NEXT
26100 PRINT #8,CHR$(13);CHR$(10);
26110 NEXT
26120 PRINT #8,CHR$(27);"@":REM reset printer
26130 RETURN
```

(Ensure EASY6 is in memory before typing in).

When you have finished, save the whole program as EASYDRAW and test out the new routine.

That's it folks!You should now have a complete graphics package which you can add to, a knowledge of graphics and a better understanding of how Basic programs are developed.The final program is 19K bytes long but, if you remove the REM statements, you can reduce the program to just over 12K, leaving plenty of scope for your own routines.

You could, for instance, add an UNDO facility, where you would save the screen to memory as new options are chosen and, if you were not satisfied with the result of the latest addition, replace the screen from memory, reverting to the original screen.

I have found when writing most programs, and especially graphics programs, that there are always more modules that you can add though, in the end, lack of memory is the restricting factor.If you have had problems with these listings, you can always buy the books EASYDRAW2 or BASIC THE EASY WAY from the ACU magazine.Have fun and happy drawing.

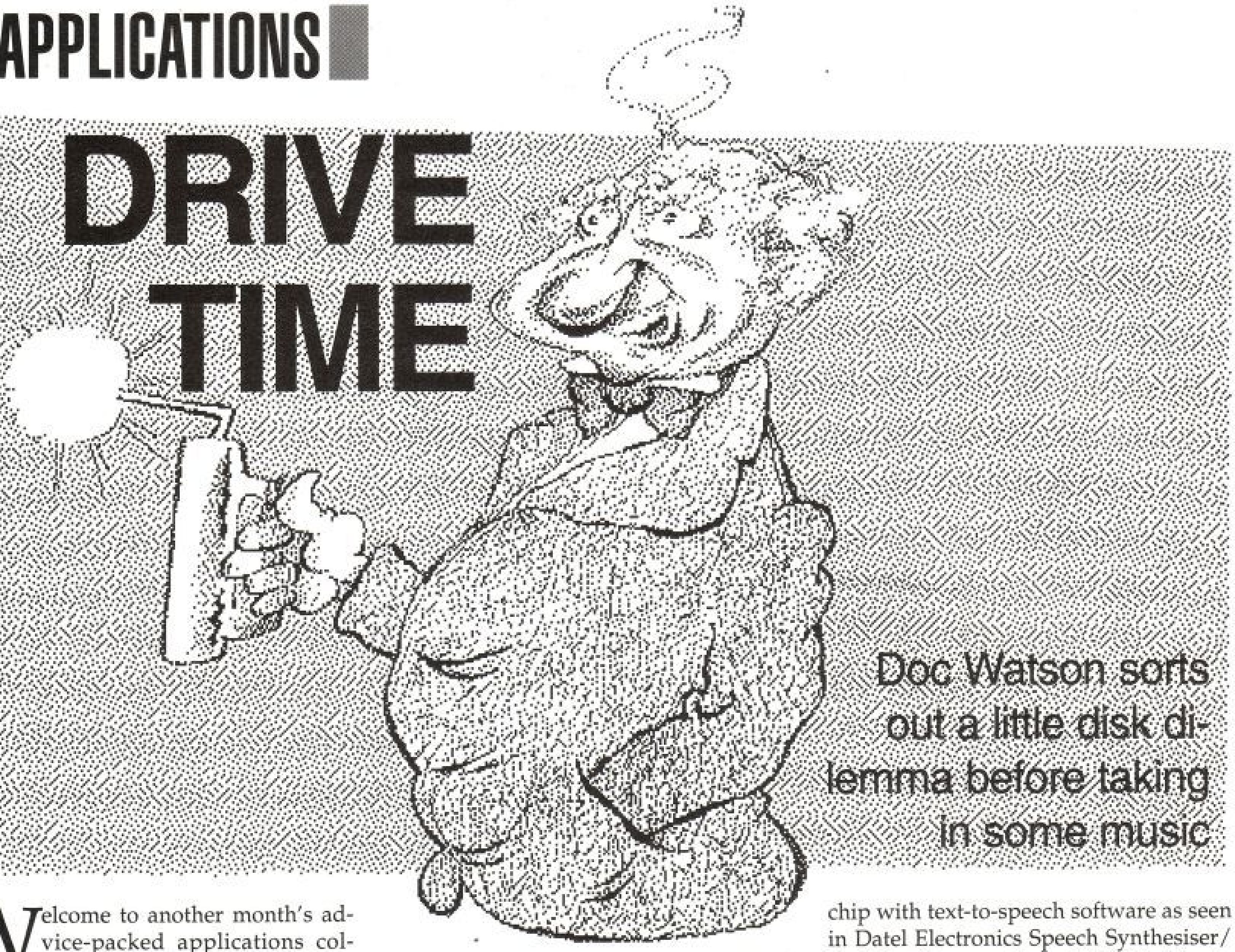
(continued overleaf)

Here is the complete listing of EASYDRAW2.

```
10 REM EASYDRAW2 by Glynne Davies of Glycar Computing
11 IF HIMEM>42619 THEN topmem=42239:ELSE topmem=40955:REM Is it disc or tape. Topmem is used by the double height routine
15 SYMBOL AFTER 32
16 MEMORY 24410:REM Reserve space for a screen dump to memory and the character set
18 GOSUB 25000:REM Load machine code
20 REM Variables x y (co-ordinates) jump (cursor move distance)
21 REM variables ip (ink pen) ib (ink border/paper) d (display) mde$ (mode selected)
23 REM variable  beam (leave line if beam is on)
24 REM Variable ele (Elastic band switch) xf,yf (origin for Elastic band)
25 REM Variables ans$ (Input string) xx (Input position) l (Input length) str (string if 1 numeric if 0)
26 REM Variables angle (Arc angle) r (radius)
28 REM variables rub (rubout variable) origx,origy (original x and y)
29 REM Variables side (amount of sides in shape) sa (Start angle of shape)
40 x=320:y=200:jump=10:ip=13:ib=0:mde$="MOVE"
45 INK 1,ip:INK 0,ib:BORDER ib
50 MODE 2:REM 640x200 graphics
51 DIM shape$(99)
52 WINDOW 1,79,1,1:ORIGIN 0,0,0,640,384,0:GOSUB 12000:REM Set up a text window (window) to be the top line. Set up a graphics window (origin) for the remaining screen
60 GOSUB 5070:REM draw cursor
70 WHILE trip=0
80 REM Remove keypress for speed
90 GOSUB 5000:REM Cursor move
100 IF INKEY(53)=128 THEN ip=(ip+1) MOD 27:INK 1,ip:IF ip=ib THEN ip=ip+1:INK 1,ip:REM If CTRL+F are pressed change the Foreground colour
110 IF INKEY(54)=128 THEN ib=(ib+1) MOD 27:INK 0,ib:BORDER ib:IF ib=ip THEN ib=ib+1:INK 0,ib:BORDER ib:REM If CTRL+B are pressed change the Background colour and the Border colour
120 IF INKEY(61)=128 THEN d=(d+1) MOD 2:LOCATE 12,1:PRINT SPACE$(16);:REM If CTRL+D are pressed switch on x,y Display
130 IF d=1 THEN LOCATE 12,1:PRINT SPACE$(16);:LOCATE 12,1:PRINT "X=";x;" Y=";y;:REM Display X and Y
140 IF INKEY(50)=128 THEN GOSUB 5070:x=320:y=200:GOSUB 5070:IF d=1 THEN LOCATE 12,1:PRINT "X=";x;" Y=";y;:REM Reset X to 320 and Y to 200
150 IF INKEY(54)=0 THEN GOSUB 11000:beam=1:a=x:b=y:GOSUB 12000:REM Reset all the function variables to zero (line 11000) and Reprint status line
160 IF beam=1 THEN GOSUB 4500:a=x:b=y
170 IF INKEY(38)=0 THEN GOSUB 11000:GOSUB 12000
180 IF INKEY(58)=0 THEN GOSUB 11000:set=0:mde$="ELASTIC":ele=1:GOSUB 12000:REM Press E to switch on Elastic band F to Fix a line
190 IF ele=1 THEN GOSUB 6000
200 IF INKEY(53)=0 AND ele=1 AND tl=0 THEN a=xf:b=yf:set=0:GOSUB 4500:REM Press F to Fix the line from Elastic band
210 IF INKEY(59)=160 THEN CLG:GOSUB 5070:REM Press CTRL + SHIFT + W to clear screen and replace cursor
220 IF INKEY(45)=0 THEN str=0:xx=12:ask$="PLEASE ENTER THE JUMP LENGTH":l=3:GOSUB 3000:jump=VAL(ans$):GOSUB 12000:REM Press J to change jump size. This is numeric and the str variable is set to 0. (str xx ask$ and l are all needed for the Input routine
230 IF INKEY(51)=0 AND text=0 THEN mde$="TEXT":GOSUB 12000:xx=12:str=1:ask$="TEXT=":l=40:GOSUB 3000:IF LEN(ans$)>0 THEN GOSUB 11000:text=1:texl=8:n$=ans$:hig=16:GOSUB 5100
240 IF INKEY(53)=0 AND text=1 THEN GOSUB 2000:REM Press F to Fix the Text in position
250 IF text=1 THEN GOSUB 15000
260 IF text=1 AND INKEY(51)=0 THEN tms=(tms+1) MOD 2:texl=8:hig=16:IF tms=1 THEN texl=16:hig=32
270 IF INKEY(69)=0 THEN GOSUB 11000:mde$="ARC":GOSUB 12000:GOSUB 10000:GOSUB 11000:GOSUB 12000
280 IF INKEY(50)=0 THEN GOSUB 11000:rub=1:mde$="RUBBER":GOSUB 12000
290 IF rub=1 THEN GOSUB 16000
300 IF INKEY(62)=0 THEN GOSUB 11000:mde$="CIRCLE":GOSUB 12000:GOSUB 7000:GOSUB 11000:GOSUB 12000:REM Press C for Circle/Shape routine
310 IF INKEY(62)=128 THEN GOSUB 24000:GOSUB 24100:REM CTRL+C to Save save to memory call 24411, cat the disc and then return screen from memory
320 IF INKEY(60)=128 THEN store=1:GOSUB 24000:GOSUB 24500:GOSUB 24100:REM CTRL+S to Save Screen to memory
330 IF INKEY(36)=128 THEN GOSUB 24000:GOSUB 24500:GOSUB 24100:REM CTRL+L to Load a Screen to memory
340 IF INKEY(27)=0 THEN GOSUB 11000:mde$="PAINT":GOSUB 12000:GOSUB 4000:GOSUB 11000:GOSUB 12000
350 IF INKEY(60)=0 THEN GOSUB 11000:mde$="SHAPE":GOSUB 12000:GOSUB 8000:GOSUB 11000:GOSUB 12000
360 IF INKEY(71)=0 AND highshape>0 THEN GOSUB 11000:mde$="ZOOM":GOSUB 12000:GOSUB 8290:GOSUB 5070:mde$="MOVE":GOSUB 12000
370 IF INKEY(37)=128 AND highshape>0 THEN GOSUB 24000:GOSUB 24700:GOSUB 24100:REM Press CTRL+K to Keep shapes
380 IF INKEY(69)=128 THEN GOSUB 24000:GOSUB 24800:GOSUB 24100:REM Press CTRL+A to Add saved shapes
400 IF INKEY(27)=128 THEN CLS:GOSUB 5070:GOSUB 11000:GOSUB 26000:GOSUB 11000:GOSUB 12000:GOSUB 5070:REM Print screen option
500 WEND
2000 REM Position text
2010 TAG:REM Set the text at the graphics position
2020 IF hig=32 THEN GOSUB 20000 ELSE PRINT n$;:REM Choose Double or single
2030 TAGOFF:REM Switch back to normal text
2040 .RETURN
3000 REM Input routine
3005 FOR n=1 TO 20:CALL &BB1B:NEXT:REM Flush the keyboard buffer
3010 ans$="":GOSUB 12000:REM Reset ans$ to null and clear status line
3020 LOCATE xx,1:PRINT ask$+" "+CHR$(246)+SPACE$(1)+CHR$(247);:REM Print the question and answer space
3025 IF str=0 THEN lim1=47:lim2=58:ELSE lim1=31:lim2=127
3030 k$=" ":xx=xx+LEN(ask$)+2:REM reset xx to answer position
3040 WHILE ASC(k$)<>13:REM Loop until Enter is pressed
3050 k$="":WHILE k$="":k$=INKEY$:WEND:REM Loop to wait for keypress
3060 IF ASC(k$)>lim1 AND ASC(k$)<lim2 AND LEN(ans$)<l THEN ans$=ans$+k$:REM Accept any keyboard character into the string if the string is below l. If str=0 then numbers only
3070 IF ASC(k$)=127 AND LEN(ans$)>0 THEN ans$=LEFT$(ans$,LEN(ans$)-1):REM If DEL is pressed remove a character if one exists
3080 LOCATE xx,1:PRINT SPACE$(1);:LOCATE xx,1:PRINT ans$;:REM Remove old string and replace with the new string
3090 WEND
3100 GOSUB 12000:REM remove information
3110 RETURN
3990 REM **************************
4000 REM Paint a enclosed shape
4010 GOSUB 5070:REM remove cursor
4020 xx=12:l=3:ask$="Please Enter the style number, Enter for solid":str=0:GOSUB 3000:REM Numbers between 1 and 255 paint in vertical stripes
4025 IF VAL(ans$)<1 THEN pke=255:FILL 1:GOSUB 5070:RETURN:ELSE pke=VAL(ans$):REM *** 464 *** Fill will not work on the 464 therefore remove :FILL 1:GOSUB 5070:RETURN:
4026 IF pke>245 AND pke<255 THEN pke=245
4030 REM search for the bottom
4040 xser=x:yser=y
4050 WHILE TEST(xser,yser)=0:REM check for a lit pixel
4060 yser=yser-2
4070 IF yser<3 THEN PLOT xser,yser,1:REM if no pixels exist create one at the bottom
4075 WEND
4077 LOCATE 12,1:PRINT "Hold down S to stop, Release on sound"
4080 REM Move up ,check and draw line
4085 yser=yser+2
4090 WHILE TEST(xser,yser)=0
4095 left%=0:right%=0
4096 IF INKEY(60)=0 THEN PRINT CHR$(7):PLOT xser,yser+2,1:REM Stop the routine if S is pressed
4100 REM find pixel to the left
4110 WHILE TEST(xser-left%,yser)=0
4120 left%=left%+1
4130 IF xser-left%<1 THEN PLOT xser-left%,yser,1
4140 WEND
4150 REM find pixel to the right
4160 WHILE TEST(xser+right%,yser)=0
4170 right%=right%+1
4180 IF xser+right%>638 THEN PLOT xser+right%,yser,1
4190 WEND
4195 IF pke<>255 THEN stripe=(stripe+10) MOD 20:ELSE stripe=0
4197 POKE &B6A3,pke+stripe:REM POKE &B338,pke+stripe for *** 464 *** owners
4200 MOVE xser-left%+1,yser:DRAW xser+right%-1,yser
4205 yser=yser+2
4207 IF yser>381 THEN PLOT xser,yser,1:REM stop the upward flow
4210 WEND
4215 GOSUB 5070:REM Replace cursor
4220 RETURN
4500 REM draw line (BEAM)
4510 GOSUB 5070:REM Remove cursor
4520 MOVE a,b
4530 DRAW x,y,1
4540 GOSUB 5070:REM Replace cursor
4550 RETURN
4990 REM **************************
5000 REM Cursor move
5010 IF INKEY(1)=0 THEN GOSUB 5070:x=x+jump:GOSUB 5070
5020 IF INKEY(8)=0 THEN GOSUB 5070:x=x-jump:GOSUB 5070
5030 IF INKEY(2)=0 THEN GOSUB 5070:y=y-jump:GOSUB 5070
5040 IF INKEY(0)=0 THEN GOSUB 5070:y=y+jump:GOSUB 5070
5060 RETURN
5065 REM **************************
5070 REM Draw cursor
5080 IF text=1 THEN RETURN
5100 LOCATE 1,1:PRINT CHR$(23)+CHR$(1):REM set xor mode.
5110 MOVE x-10,y:DRAW x+10,y,1
5120 MOVE x,y-10:DRAW x,y+10,1
5130 LOCATE 1,1:PRINT CHR$(23)+CHR$(0):REM Reset graphics to normal
5140 RETURN
6000 REM Elastic Band
6010 LOCATE 1,1:PRINT CHR$(23)+CHR$(1):REM XOR mode
6020 IF set=0 THEN xf=x:yf=y:set=1:MOVE xf,yf:DRAW x,y,1:REM Fix xf and yf when set=0
6030 MOVE xf,yf:DRAW x,y,1
6040 FOR w=1 TO 10:NEXT:REM a short pause
6050 DRAW xf,yf,1
6060 LOCATE 1,1:PRINT CHR$(23)+CHR$(0):REM Normal Mode
6070 RETURN
7000 REM Circle and Shape routine
7010 IF r=0 THEN r=40
7020 REM Input the horizontal radius and vertical radius to allow for ellipses, for circular objects set radius and press F twice
7030 start=-1:angle=PI/2:LOCATE 12,1:PRINT "Horizontal Radius":GOSUB 10030:rx=r:REM Use Arc routine
7040 FOR n=1 TO 20:CALL &BB1B:NEXT:REM Flush the buffer
7050 LOCATE 12,1:PRINT "Vertical Radius ":angle=0:GOSUB 10030:ry=r:start=0:REM Use arc routine
7060 ask$="Enter then amount of sides or Enter for circle":xx=12:l=3:str=0:GOSUB 3000:side=VAL(ans$)
7070 IF side=0 THEN side=100:REM If Enter is pressed set up a 100 part circle.
7080 IF side<16 THEN ask$="Enter the start angle 0-360":xx=12:l=3:str=0:GOSUB 3000:sa=VAL(ans$):sa=2*PI*(sa/360)
7090 GOSUB 5070:REM remove cursor
7100 MOVE x+SIN(-PI+sa)*rx,y+COS(-PI+sa)*ry:REM move to the bottom of shape
7110 FOR n=-PI+sa TO PI+0.2+sa STEP (2*PI)/side:REM Calculate the positions for a circle of (side) sides
7120 DRAW x+SIN(n)*rx,y+COS(n)*ry,1:REM Draw a straight line between positions
7130 NEXT
7140 GOSUB 5070:REM replace cursor
7150 RETURN
7160 IF INKEY(53)=0 AND start=-1 THEN arc=1
7170 IF start<1 THEN GOSUB 5000:PRINT CHR$(23)+CHR$(1);:REM cursor keys
7180 IF start=-1 THEN arc=0:RETURN:REM Use the Arc routine but return at this point.
8000 REM shape memory
8010 shp=0:WHILE shp=0
8020 xx=12:l=2:ask$="Enter the shape number (up to "+STR$(highshape)+" chosen)":GOSUB 3000:shp=VAL(ans$)
8030 info$="E Elastic F Fix M Move J Jump and Enter to finish"
8040 LOCATE 12,1:PRINT "E elastic band F to Fix M to Move Enter when finished"
8050 WEND
8060 IF shp>highshape THEN highshape=shp
8070 shapemem=0:shape$(shp)=""
8080 WHILE shapemem=0
8090 IF INKEY(53)=0 AND ele=1 THEN a=xf:b=yf:set=0:GOSUB 4500:GOSUB
```

```
8240:REM Press F to Fix and set up shape$ with new co-ordinates
8100 IF INKEY(38)=0 THEN GOSUB 11000:GOSUB 12000:ele=0:REM Press
M to move
8110    IF    INKEY(58)=0    THEN    GOSUB    11000:set=0:GOSUB
8240:mde$="ELASTIC":ele=1:GOSUB 12000:REM Press E to switch on
Elastic band F to Fix a line
8120 IF INKEY(45)=0 THEN str=0:xx=12:ask$="PLEASE ENTER THE JUMP
LENGTH":l=3:GOSUB 3000:jump=VAL(ans$):GOSUB 12000:REM Press J to
change jump size
8130 GOSUB 5000:REM Cursor movement
8140 IF ele=1 THEN GOSUB 6000
8150 IF INKEY(18)=0 THEN shapemem=1:REM Shape complete
8160 WEND
8170 shapemem=0
8180 FOR n=1 TO LEN(shape$(shp))
8190 IF MID$(shape$(shp),n,1)=" " THEN newshape$=newshape$+"¦":ELSE
newshape$=newshape$+MID$(shape$(shp),n,1)
8200 NEXT
8210 shape$(shp)=newshape$:newshape$=""
8220 info$=""
8230 RETURN
8240 IF LEN(shape$(shp))>240 THEN shapemem=1:PRINT CHR$(7):RETURN
8250 first$=STR$(x):second$=STR$(y)
8260 IF ele=1 THEN lin=1 ELSE lin=0
8270 shape$(shp)=shape$(shp)+STR$(lin)+first$+second$
8280 RETURN
8290 REM Redraw shape
8300 IF highshape=0 THEN RETURN
8310 shp=0
8320 WHILE LEN(shape$(shp))<1
8330  xx=12:l=2:ask$="Please  Enter  the  shape  number  (up  to
"+STR$(highshape)+" defined)":GOSUB 3000:shp=VAL(ans$)
8340 WEND
8350  xx=12:l=3:ask$="Please  Enter  the  Magnification":GOSUB
3000:mag=VAL(ans$)
8360 mag=mag/10:REM Reduce magnification 10 is normal 1 is one
tenth and 99 is 9.9 times
8370 GOSUB 5070:MOVER 0,-10
8380 newshape$=shape$(shp)
8390 pointer=INSTR(newshape$,"¦")
8400 newshape$=RIGHT$(newshape$,LEN(newshape$)-pointer)
8410 drwmov=VAL(newshape$)
8420 pointer=INSTR(newshape$,"¦")
8430 newshape$=RIGHT$(newshape$,LEN(newshape$)-pointer)
8440 xold=VAL(newshape$)
8450 pointer=INSTR(newshape$,"¦")
8460 newshape$=RIGHT$(newshape$,LEN(newshape$)-pointer)
8470 yold=VAL(newshape$)
8480 WHILE INSTR(newshape$,"¦")>0
8490 pointer=INSTR(newshape$,"¦")
8500 newshape$=RIGHT$(newshape$,LEN(newshape$)-pointer)
8510 drwmov=VAL(newshape$)
8520 pointer=INSTR(newshape$,"¦")
8530 newshape$=RIGHT$(newshape$,LEN(newshape$)-pointer)
8540 xnew=VAL(newshape$)
8550 pointer=INSTR(newshape$,"¦")
8560 newshape$=RIGHT$(newshape$,LEN(newshape$)-pointer)
8570 ynew=VAL(newshape$)
8580 IF drwmov=1 THEN DRAWR mag*(xnew-xold),mag*(ynew-yold),1:ELSE
MOVER mag*(xnew-xold),mag*(ynew-yold)
8590 xold=xnew:yold=ynew
8600 WEND
8610 RETURN
10000 REM ARC
10010 angle=0:IF r=0 THEN r=20:REM Set a radius if none exists
10030 WHILE arc=0
10040 IF INKEY(60)=0 AND start=0 THEN s=angle:xy=1:MOVE x,y:DRAW
x+r*SIN(angle),y+r*COS(angle),1:start=1:REM Press S for the start
position of the arc
10050 IF INKEY(53)=0 AND start=1 THEN  arc=1:f=angle:REM Press F
at the Finish position of the arc
10055 IF INKEY(53)=0 AND start=-1 THEN arc=1:REM Selection of
radius from the circle routine
10060 IF INKEY(39)=0 THEN angle=angle-0.05:REM Move the arm anti
clockwise  KEY <
10070  IF  INKEY(31)=0  THEN  angle=angle+0.05:REM  Move  the  arm
clockwise       KEY >
10080 IF INKEY(28)=0 THEN r=r+4:REM Increase the radius
  KEY +
10090 IF INKEY(25)=0 AND r>4 THEN r=r-4:REM Decrease the radius
  KEY -
10100 IF INKEY(37)=0 THEN xx=12:str=0:l=3:ask$="Enter the Radius
=":GOSUB 3000:r=VAL(ans$):REM Press K to Key in the Radius
10110 IF start<1 THEN GOSUB 5000:PRINT CHR$(23);CHR$(1);:REM cursor
keys
10120 MOVE x,y
10130 DRAW x+r*SIN(angle),y+r*COS(angle),1
10140 MOVE x,y
10150 DRAW x+r*SIN(angle),y+r*COS(angle),1
10160 WEND
10165 IF mde$="CIRCLE" THEN arc=0:RETURN:REM Return to the circle
routine
10170 IF f<s THEN inc=-0.02 ELSE inc=0.02
10180 MOVE x,y:DRAW x+r*SIN(s),y+r*COS(s),1
10190 PRINT CHR$(23)+CHR$(0);
10200 MOVE x+r*SIN(s),y+r*COS(s)
10210 FOR n=s TO f STEP inc:REM Draw the ARC
10220 DRAW x+r*SIN(n),y+r*COS(n),1
10230 NEXT
10240 arc=0:start=0:REM reset variables
10260 RETURN
11000 REM Reset all function variables to zero
11005 IF text=1 THEN text=0:GOSUB 5070:REM Switch off text and
replace the cursor

1            1            0            1            0
start=0:beam=0:ele=0:fl=0:rub=0:xy=0:tl=0:tb=0:t=0:mde$="MOVE"
11020 RETURN
12000 CLS
12002 IF beam=1 THEN mde$="BEAM"
12004 IF ele=1 THEN mde$="ELASTIC"
12006 IF jump=0 THEN jump=1:REM Ensure jump exists
12010 LOCATE 1,1:PRINT "Jump=";jump;:REM Distance the cursor moves
12020 LOCATE 70,1:PRINT mde$;:REM Working mode selected
12030 IF d=1 THEN LOCATE 12,1:PRINT SPACE$(16);:LOCATE 12,1:PRINT
"X=";x;" Y=";y;:REM Display X and Y
12035 IF LEN(info$)>0 AND d=0 THEN  LOCATE 12,1:PRINT info$
12040 RETURN
15000 REM text box
15005 LOCATE 1,1:PRINT CHR$(23)+CHR$(1);
15010 MOVE x,y
15020  DRAW  x+LEN(n$)*texl,y,1:DRAW  x+LEN(n$)*texl,y-hig,1:DRAW
x,y-hig,1:DRAW x,y,1
15030  DRAW  x+LEN(n$)*texl,y,1:DRAW  x+LEN(n$)*texl,y-hig,1:DRAW
x,y-hig,1:DRAW x,y,1
15035 LOCATE 1,1:PRINT CHR$(23)+CHR$(0);
15040 RETURN
16000 REM Remove a chosen block from the screen
16010 LOCATE 1,1:PRINT CHR$(23)+CHR$(1);
16015 IF start=0 THEN start=1:origx=x:origy=y
16020 MOVE origx,origy
16030 DRAW x,origy,1:DRAW x,y,1:DRAW origx,y,1:DRAW origx,origy,1
16040 DRAW x,origy,1:DRAW x,y,1:DRAW origx,y,1:DRAW origx,origy,1
16050 IF INKEY(53)=0 THEN GOSUB 16100
16060 RETURN
16100 IF x<origx THEN xs=x:xe=origx:ELSE xs=origx:xe=x:REM find the
XStart and Xend for the window
16110 IF y<origy THEN ys=y:ye=origy:ELSE ys=origy:ye=y:REM find the
YStart and YEnd for the window
16115 GOSUB 5070:REM remove cursor
16120 ORIGIN xs+4,ys,xs+4,xe-4,ys,ye:CLG:REM Redefine the graphics
screen and clear the new window
16130 ORIGIN 0,0,0,640,384,0:REM Reset graaphics screen
16140 GOSUB 5070:REM replace cursor
16150 RETURN
19990 REM Double height Double width routine
20000 FOR n= 1 TO LEN(n$)
20010 pk=ASC(MID$(n$,n,1))
20020 FOR set=1 TO 8
20030 p=PEEK(topmem+(8*(pk-32))+set):REM set p to the byte
20040 GOSUB 20150:REM Change to two nibbles ( a nibble is half a
byte ( 4 bits))
20050 NEXT
20060 REM convert the characters 255,254,253,252 into the four
quarters of a block
20070 SYMBOL 255,hb(1),hb(1),hb(2),hb(2),hb(3),hb(3),hb(4),hb(4)
20080 SYMBOL 254,lb(1),lb(1),lb(2),lb(2),lb(3),lb(3),lb(4),lb(4)
20090 SYMBOL 253,hb(5),hb(5),hb(6),hb(6),hb(7),hb(7),hb(8),hb(8)
20100 SYMBOL 252,lb(5),lb(5),lb(6),lb(6),lb(7),lb(7),lb(8),lb(8)
20110 MOVE x+mov,y:PRINT CHR$(255);CHR$(254);
20115 MOVE x+mov,y-16:PRINT CHR$(253);CHR$(252);
20120 mov=mov+16
20130 NEXT
20135 mov=0
20140 RETURN
20150 REM change to two nibbles
20160 lb=p AND 15:a=lb:GOSUB 20190:lb(set)=nn:nn=0
20170 hb=p AND 240:a=hb/16:GOSUB 20190:hb(set)=nn:nn=0
20180 RETURN
20190 REM change nibbles TO bytes
20200 IF a=0 THEN RETURN
20210 IF a-8>=0 THEN nn=nn+192:a=a-8
20220 IF a-4>=0 THEN nn=nn+48:a=a-4
20230 IF a-2>=0 THEN nn=nn+12:a=a-2
20240 IF a=1 THEN nn=nn+3
20260 RETURN
24000 REM Save the screen to memory and cat the disc, replace the
screen
24010 GOSUB 11000:GOSUB 12000:REM Reset the screen to MOVE
24020 CLS:REM Remove the top line
24030 GOSUB 5070:REM Remove the cursor
24040 CALL 24411:REM Use the Machine code to save the screen
24050 WINDOW 1,80,1,25:REM Large window
24060 CLS:IF topmem=42239 THEN RETURN:REM If the machine is tape
only do not catalogue
24070 FOR n=1 TO 20:CALL &BB1B:NEXT:REM Flush the buffer
24080 CAT
24090 PRINT "Press any key":CALL &BB18
24095 RETURN:REM Allow for LOAD and SAVE
24100 WINDOW 1,80,1,1:REM Replace status window
24110 CALL 24423:REM Replace Screen
24120 GOSUB 12000
24130 GOSUB 5070:REM replace cursor
24140 RETURN
24500 REM Load and Save Screen Pictures
24510 IF store=1 THEN ask1$="Save ":ELSE ask1$="Load "
24520 str=1:xx=12:l=8:ask$=ask1$+"the file called":GOSUB 3000:REM
Use the input routine
24530 IF store=1 THEN SAVE ans$,b,&5F75,&4000:ELSE LOAD ans$,&5F75
24540 store=0
24550 RETURN
24700  xx=12:l=8:str=1:ask$="Name  the  shapes  or  Enter  to
Return":GOSUB 3000
24710 IF ans$="" THEN RETURN
24720 OPENOUT ans$+".shp":REM open a channel to the disc or tape
24730 PRINT #9,highshape:REM Place the number of shapes on disc or
tape
24740 FOR n=1 TO highshape
24750 PRINT #9,shape$(n)
24760 NEXT
24780 CLOSEOUT
24790 RETURN
24800  xx=12:l=8:str=1:ask$="Enter  the  shape  name  or  Enter  to
Return":GOSUB 3000
24810 IF ans$="" THEN RETURN
24820 OPENIN ans$+".shp":REM open a channel from tape or disc
24830 INPUT #9,highshape:REM Find out how many pieces of data are
available
24835 FOR n= 1 TO highshape
24840 INPUT #9,shape$(n)
24850 NEXT
24860 CLOSEIN
24870 RETURN
25000 REM *** machine code for screen dump ***
25010 FOR n=24411 TO 24434
25020 READ x
25030 POKE n,x
25040 NEXT n
25050 RETURN
25060 DATA 1,0,64,33,0,192,17,117,95,237,176,201
25070 DATA 1,0,64,33,117,95,17,0,192,237,176,201
26000 REM print out
26010  PRINT #8,CHR$(27);"@":WIDTH 255:REM Reset printer and set
width
26020 PRINT #8,CHR$(27);"3";CHR$(3);:REM Set line feed to 3/216
26030 FOR x=0 TO 639
26040 PRINT #8,CHR$(27);"*";CHR$(2);CHR$(32);CHR$(3);:REM Bit image
mode
26050 FOR i=0 TO 199
26060 tst=TEST(x,i*2)*3:REM If a point is lit tst=3 or tst=0:tst=3
is two pins i.e. 00000011 in binary =3
26070 PRINT #8,CHR$(tst);CHR$(tst);CHR$(tst);CHR$(tst);
26080 REM PRINT #8,CHR$(tst);CHR$(tst);
26090 NEXT
26100 PRINT #8,CHR$(13);CHR$(10);
26110 NEXT
26120 PRINT #8,CHR$(27);"@":REM reset printer
26130 RETURN
```



DRIVE TIME

Doc Watson sorts out a little disk dilemma before taking in some music

Welcome to another month's advice-packed applications column. There's only so much that's typographically possible to fit into two pages so, without further ado, here's our first letter...

Mrs J.C.Cox continues to suffer at the hands of mail-order companies:

"Thank you for printing and answering my letter in the December issue re Siren Software and the returned 3.5" disc drive for which I could not get my money refunded. You said to let you know how I got on ; I rang the number you gave, the first person I spoke to knew nothing and put me through to somebody else, who also knew nothing. They knew nothing of your phone call, my calls or your letters. I gave all the details and dates of my letters, I was asked for my phone number and they said they would ring me back. I am still awaiting their call. I receive exactly the same treatment each time I call. This whole matter has now cost me about £15 in postage and phone calls which I cannot really afford being on a low income. I notice in the January issue of ACU there are several advertisements for 3.5" disc drives, but until my money is returned I cannot afford to buy another one. I see that Siren Software are also running an advert again, but I certainly would not recommend anybody to deal with these people. Is it possible you could take up the matter with them again and persuade them to send me a cheque, if not can you suggest the best way of dealing with these people. I did contact the Consumers Association, but they will only help if I join their Personal Service at an annual fee of £36 and also pay £40 for their solicitor to deal with the matter. I am afraid this is not on. I do not know if I am just going through an unlucky patch, but I sent a year's subscription to WACCI in July for the fanzine. I received one issue at that time, but nothing further. The phone is not answered and I have had no reply to my letter. Is this another lot of money I have lost? Thanks once again for your interest and best wishes to all at ACU."

What can I say Mrs Cox? You certainly do seem to be having a run of rather bad luck. At the time of writing I have been unable to contact Siren but will continue trying to do so. In the meantime, why not contact your local trading standards officer, or threaten legal action - even if you have no intention of carrying it out. To be fair to Siren, we haven't had any other complaints about them, so this may well be a one-off incident. As for WACCI, I'm afraid the news isn't good. They seem to be having some financial difficulties (to put it mildly) and the last I heard, a group of enthusiasts were hoping to take over the running of the club. We'll just have to wait and see what develops.

Sounds of Discontent

A puzzled Karl Coleman has a few questions regarding audio add-ons for Arnold:

"If I were to buy the Siren Soundblaster (£34.95), would it have the built in ROM chip with text-to-speech software as seen in Datel Electronics Speech Synthesiser/ Pod Speakers package (£29.99). If not, then why is the Soundblaster more expensive? Or, would it be better to buy the Midi-Music Machine from Datel Electronics (£49.99). Would this allow me to plug in to a keyboard and a Karaoke machine of some sort? Also, do these things plug in the stereo socket or the expansion port?"

Ok Karl, what we're dealing with here are three very different products. Siren's Soundblaster is a stereo amplifier which improves the quality of the sounds which your Amstrad produces - it doesn't actually allow you to produce any new sounds, rather it enhances existing ones. The effect is quite impressive but no different to plugging your computer into a domestic hi-fi amp.

The speech synthesiser you mention also acts as a stereo amplifier but this is really a by-product of its main use, that of producing human vocal sounds (and I use the word 'human' loosely!). Human speech can be broken down into around 60 different 'allophones' that roughly correspond to syllables of words. It is these snatches of speech which are synthesised and, by stringing several together, words may be formed. For example, the allophones /KK1/AO/MM/PP/YY1/UW2/TT2/ER1/ would pronounce the word 'computer'. To make things a bit easier, the speech synthesiser adds a couple of BASIC commands to generate these allophones from normal written English text, so the actual mechanics become transparent to the user. The resulting speech is

similar in style to that of a 'speak & spell' machine.

Just why anyone would want to shell out an extra fiver for the Soundblaster, I'm not quite sure. Its amplifier and speakers may be slightly better than those of the speech synthesiser, but in my opinion these do not justify the extra cost. A more realistic price would be around £15.

The final device you mention is the Music Machine which, in accordance with its price, is the most versatile of the three. Perhaps its most useful feature is that of being able to sample sounds ('sampling' is the process of recording sounds digitally or electronically). The main advantage of doing this is that once sounds are in a digital form, they can be stored/manipulated/replayed by a computer. For example, having sampled just one note of an instrument, a computer can easily transpose it up/down to produce dozens of new notes. The package includes a microphone and software to allow you to save/load your samples onto tape/disc. A set of demonstration samples is also provided, in particular some rather nice drum sounds.

As well as being able to sample sounds, the Music Machine features a MIDI interface (MIDI=Musical Instrument Digital Interface). MIDI is now found as standard on most decent synthesisers/keyboards and facilitates the easy sharing of information between them. Equipping your CPC with MIDI opens up the exciting world of 'sequencing'. Any notes played on your keyboard could be stored by the computer, saved/loaded and then replayed, so having recorded one track, your CPC could replay it while you record a second - just like a traditional multitrack tape machine. Your actual playing skills need not be tremendous as notes can be automatically corrected or 'quantized' once in the computer's memory.

An added bonus is that cheaper keyboards actually become a lot more powerful when controlled via MIDI. My own keyboard, for example, can suddenly respond to key-velocity information (so notes get louder & softer), plays eight instruments/eight drum sounds simultaneously, and acquires a couple of extra octaves plus a decent pitch bender into the bargain! It has to be said, however, that the Music Machine's MIDI software isn't all that it could be so you might find yourself looking around for third party stuff or else writing your own.

The Soundblaster plugs into the computer's stereo socket, the Music Machine into the expansion port (with no through-connector), while the Speech Synthesiser connects into both (and provides a through-port).

I hope all this information makes your buying decision a little bit easier Karl. If you decide upon the Music Machine, do make sure your keyboard is MIDI compatible first. In the meantime, why not check out this month's Techie Bit to discover just how to build your very own stereo amp.

The JOYs of Spring

Denis Benson has written with details of his waggling woes:

"I read your pages in ACU with great interest as you cover a large part of computing with the CPC and mainly on the serious side. I hope you will not mind me writing to you, as I have a small problem. I have tried for ages to find the answer but to no avail. The problem is that when I use a joystick it will move objects or characters up, down, left to right, but not from right to left, no matter what I do. I have checked the joystick, cable, plug and socket. I have also been inside the computer and traced the printed circuit board tracks up to the tapes connecting the keyboard, but no joy. Please, please help me, is it possible that there is a chip or rom that receives signals from the joystick & keyboard? My keyboard works OK thus proving that the computer's circuitry is not at fault. Also dare I ask, is it possible for ACU to do a series on the workings of the 6128 & 464, showing the chips and roms and what they do. It seems impossible to get hold of a firmware manual, so could you include some of this - I am sure it would be of great help to all your readers. I am a plumber and I do all my estimates and invoices on the 6128 keeping files and copies on disc. My set up includes Protext on rom, a 2nd disc drive with MS800, and a Brother M-1009. The printer only has a small buffer, so I use a printer buffer program which is installed in the bankman. It lets me use the computer while still printing, with BUFFON and BUFFOFF. All this boots in seconds with RUN DISC, it is great!"

Glad to hear that your 6128 is proving such an asset to your business Mr.Benson. Joysticks aren't generally noted for their reliability so your problem doesn't really surprise me. The 8255 Parallel Peripheral Interface (PPI) IC is responsible for the cassette interface, printer port, keyboard & joystick scanning as well as controlling the sound chip. So, had this busy little chip given up the ghost you would certainly know about it! It is possible for some lesser component/connection specific to the joystick port to have failed but this is rather unlikely.

A far more plausible explanation is for one of the crude leaf switches in your joystick to have bitten the dust. It's happened to me more than once and they're tricky little devils to fix, I can tell you. This can be confirmed by testing pins 3 and 8 on the joystick connector (see computer manual for pins' position). In a healthy specimen, pushing the joystick left should connect the two, i.e. a voltage will flow between them. Of course, the easiest thing to do is test your joystick on a friend's machine, and test a friend's joystick on your machine. If you don't have a suitable friend to hand then why not pay a visit to your local computer shop - they're usually a pretty helpful bunch.

I'll pass your suggestion of an 'I wonder what this chip does' series onto our beloved editor, so keep your fingers crossed! As for publishing swathes of text from the firmware manual, I'm afraid there's a small matter of copyright. However, the good news is that discussions are still taking place for ACU to give the firmware guide a new lease of life, so watch this space!

Australian Undergraduate

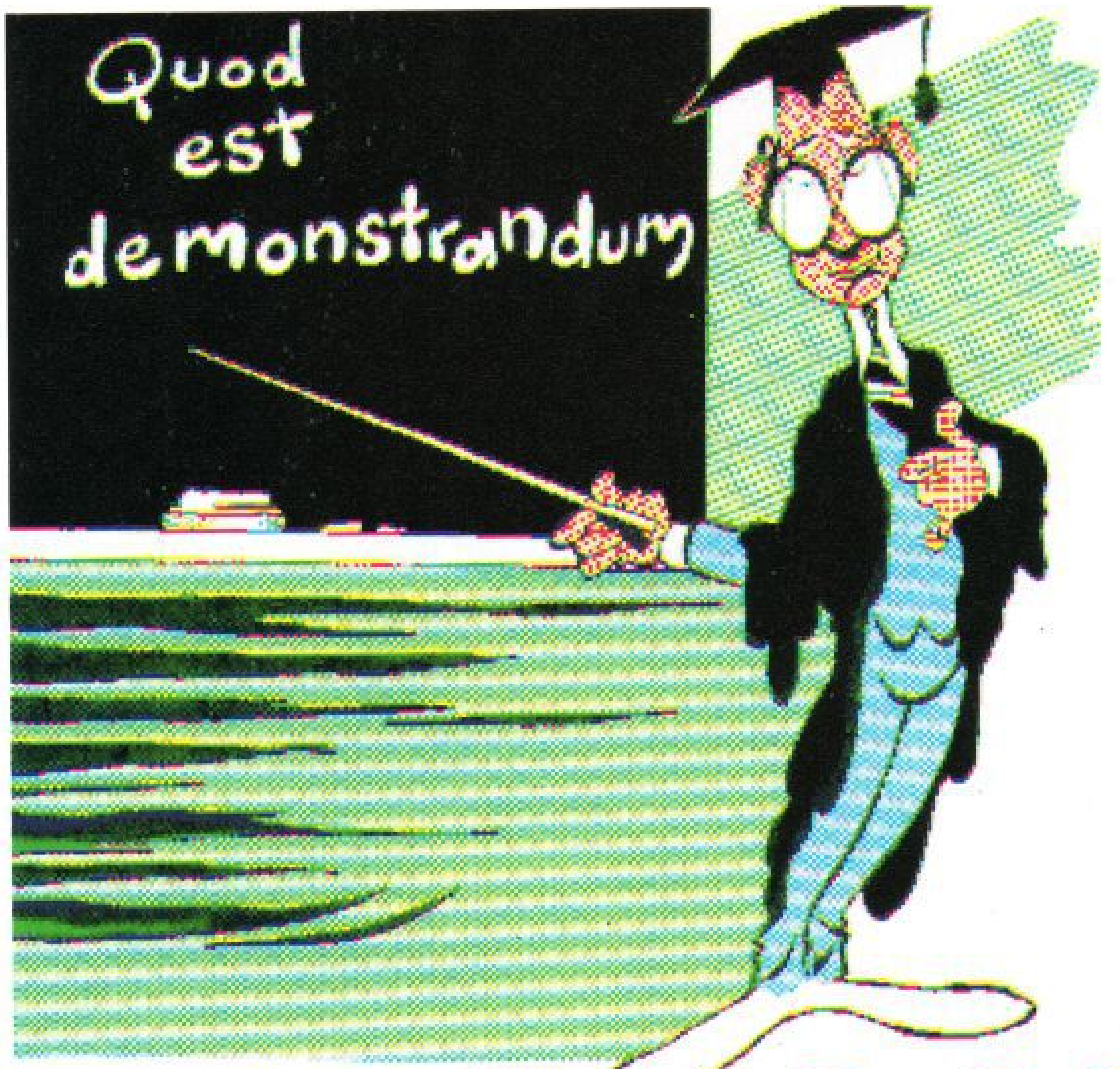
Just how many 'graduate' puns can one computer journalist make, I hear you cry. Well, three to be exact. The cause of this month's is a letter from Jerzy Sierzputowski (no I didn't just fall on my computer keyboard!) from Yarraville, Down-Under:

"Could you please advise me who is currently making/marketing ROM based CP/M++? It used to be done by Graduate Software (as mentioned in your magazine Sept'88), but this contact does not seem to exist any more. I will be grateful for any info on this subject. P.S. Is it possible to buy a blank ROM chip?"

CPM++?! I think you've been programming in C too long! (an object-oriented joke there). Unfortunately I have no up to date address for Graduate software and cannot even be certain if they're still trading. Does any reader know different? Your best bet is probably to keep an eye on the second-hand market to see if an old CPM ROM comes up for sale.

You didn't give much information about why you want a blank ROM chip. If, as I suspect, you intend to program it then what you require is an EPROM. These silicon beasts are extremely common and have the advantage that their information may be erased by exposure to intense UV light - highly useful when you discover a bug in the program you've just stored on the chip. A 16K EPROM retails for around £5 from electronic suppliers such as RS, Maplin, Farnell Electronics, or their Australian counterparts.

Well, the bottom of the page seems to be getting awfully close, so I guess that's about it for this month. Don't forget to keep sending in your letters or I'll have nothing left to read at bedtime!



ChaRleyTroniC of Conspiracy explains the art of useless programming.

THE DEMO COLUMN

This is 1992 - the year of Europe. We are now closely linked with the French, the Germans, the Dutch and the Danes in all walks of life. Well, not quite; go over to the Continent and have a look at some CPC programs. You might see all 26 colours and three modes on screen at once, really smooth movement, great music...

What the Continentals know is how to write demos. Demos are not just boring clips from the latest beat-em-up, which certain magazines fill up their cover tapes with. No, real demos have great graphics, animation and sound, and have two purposes: to show how clever the programmer is, and to show how good the CPC is.

So, if you want to annoy that smart-alec ST owner next door-and ST owners have been known to be jealous at the sight of CPC demos-then read on.

You can either write demos all on your own, or as part of a team. The team approach is often useful as you can have a good coder, an artist and a musician all working at once. Some of the most well-known teams in Europe include Logon System (probably the best team around) from France, Cadjo Clan from Germany, Unix (from all over Europe), and GPA (from France and Germany). In Britain, the only two "demogroups" at the moment are Conspiracy and the Bitmap Vandals.

Not only do the groups have names, but also each member. For example, Logon System has 11 members with names like Longshot, Fefesse and Fred Crazy. Cadjo Clan is made up of Thriller and Weee!, and Conspiracy includes Hangman, Wild Thang, LDC, Pixel and CRTC-me! Think of a silly name and you're well away.

Some people ask: "Are demos PD?." As they are written to show off to as wide a public as possible, this is certainly true. However, quite a lot of CPC demos have music hacked from games in them. This means that, even though they are made to be copied, your favourite PD library cannot legally give you a copy.

First of all, the bad news. You will have to write in machine code, (cue sound of page turning across Britain). However, with this series combined with Doc Watson's assembly tutorial, you shouldn't find it too difficult. It is a mistake to think that machine code is only understood by really clever programmers. After all, Bridge-It was written in machine code...

Before you start programming, have some idea of what your demo is going to be like. The hardest part is having the ideas for the demo: a demo will look that much more impressive if it has something original in it. A simple demo will have a smooth scrolling message across the bottom (which usually contains greetings to other demo-writers), a picture and some music playing. More advanced demos will have moving sprites, extra "scrollies", different modes on screen, rasters (which are shaded colour bars on the screen, often spinning or moving about, with as many colours as you like in them!), a moving starfield, perhaps a music power meter, like on a stereo, and even "overscan"-the whole screen is used, without any border. By the end of this series, you'll know how to do all of this-but don't get too ambitious at first..

So how are demos programmed? The most important thing is to synchronise your program to "frame flyback". TVs and monitors work at 50Hz-that is to say, a new image is displayed on the screen every 50th of a second. To achieve good-looking graphics, your demo should work at the same rate, changing the screen at this rate.

By a simple CALL-the infamous CALL &BD19-your CPC will wait until frame flyback is met. Frame flyback occurs every 50th of a second, and is the time when the electron beam has finished "drawing" the image on your monitor, and is "flying back" from the bottom to the top of the frame. Now, by putting a simple timing loop after this, you can synchronise your code to execute when the electron beam is at any point on the screen.

But what is the use of this? Earlier, I mentioned rasters, bars of different colours. These are programmed by wait-

ing until the electron beam is at the start of the screen line, changing, say, the background ink to dark blue, waiting until the electron beam is at the start of the next line, changing the ink to a brighter shade of blue, and so on. In this way, you can easily get all 26 colours on screen at once!

You can probably see how this system could be extended to having different modes on the screen.If, when the electron beam is at a certain point, you change the mode, there is no reason why you can't have all three modes on the screen at once.However, you can't use the firmware.Instead, you need to go straight into the hardware and the Video gate Array chip which, fortunately, on the Amstrad, is not too difficult to do.

Scrolling messages are easy to program, too.For example, say that you wanted a message scrolling across the bottom line of the screen, left to right as usual.Every frame flyback, you would move the whole of the bottom line left by one character-using the Z80's LDIR memory copy instruction-and print a character at the bottom right.

Try this in mode 1 and you'll find that the message is much too fast to read.To slow it down then, you could move the bottom line left by only half a character (i.e.one byte) and print a character every other frame flyback.This sort of experimentation is vital in demo programming, for example, when you are trying to get the timing EXACTLY right with a raster routine.To obtain perfect raster timing, you will need precision to around 1/40,000th of a second:fortunately, it is not as difficult as it sounds.

One of the hardest parts of writing a demo is the music.90% of demo writers do not bother with coding their own music, after all, good musicians are rare on the CPC.Instead, they rip it out of a game or, even easier, another demo.Apart from being illegal, this leads to boring music. The number of demos with David Whittaker's Glider Rider music in is quite astounding!To save you the bother of coding your own music routines, you could use a music creation system:Ubisoft's Equinoxe is ideal for creating musc for demos, but I hear another package in a similar vein-with more flexibility promised-is in development at the moment. When music is covered later in this series, there will be full details on which is the best choice for your demos.

One clever music-related effect is to have a power meter, like you find on many stereo systems.As the Amstrad has three channels of sound, you could have three separate meters, one for each channel.To do this, you need to access the sound chip and ask it for the current volume of each channel-then draw your meter accordingly.It is even possible to hook up a little animation to this-how about a drummer who hits the drum each time a volume above 5, for example, is sensed on your drumbeat channel?

Using this information, you should be able to plan a simple demo.Don't go too overboard at first:most demo writers' first efforts are pretty basic.Nobody expects a breakthrough in CPC programming from a first demo but, with practice, you can expect to see your demos improve until, one day, you are writing demos as good as most of those from Europe-and it doesn't take long!

Sorry to those few people who know about demos already, but this month's article has, by necessity, been a bit general, to explain what demos are and how they work.Starting next month, there will be practical examples of how to code specific parts of a demo, beginning with scrolling messages.

In the meantime, there is a simple demo for you this month, complete with rasters and scrolling messages. The actual code for this, excluding the "scrolltext" and the colour data for the rasters, is only about 1/4k long.When you think how long an average BASIC program is, let alone a commercial game or utility, you'll see that impressive results can be achieved with only a small program.If you are feeling really brave, you might like to try and work out how the demo works!

If you have any questions about demo programming, then write to this column c/o ACU.The address is:CRTC's Demo Column, ACU, Sunnyside Cottage, Carluddon, St.Austell, Cornwall PL26 8TY.I would also be enthusiastic to receive any demos you have written yourself...fame throughout Europe, with ACU's help, could be only a few k of code away!

THE DEMO

Notes:This must be typed in exactly as printed-if the strings are any longer or shorter, the program will not work.The hex lines are checksummed.Use mode 2 when typing in.

```
10 MEMORY &7FFF:a=&8000:p=20
20a$="3E01CD0EBC010000CD38BC3E00010000CD32BC3E01011A1ACD32
BC3E03CD90BB2E0711DBFBCDE880111BDBCDE880111BFBCDE880111B
DBCDE88011DFDBCDE8803E01CD90BBF321FBC9223800FB06F5ED781
F30FB019D7F":cs=&278A:GOSUB 70
30a$="ED492181C73E08545D1B015000EDB001B007093D20F176117700CD
E2802AB581DD2E2801037F7EED49ED79230102BC7EED4904ED7923110200
CDE280333BDD2DC27A800102BC3E2EED4904ED792AB58123233AB781B
D20":cs=&2264:GOSUB 70
40a$="093AB881BC200321B98122B5813A0281EE01320281201A2A038
17EB720042105817E232203812119284FCD75BB79CD5DBBC34D801B7AB320FBC9
260C4DCD75BB6906103E09CB13CB1230023E8FCD5Abb10F12CC9000
581":cs=&1FC0:GOSUB 70
50 a$="This is CRTC's demo for ACU... Greetings to:
all of Conspiracy - STS - th
e Bitmap Vandals - DragonBreed Wetware - Longshot of
Logon System... anti-greetin
g to Dino (lamer)... "+CHR$(0):GOSUB 80
60 a$="B9810982":cs=&1C5:GOSUB
70:a$="D.U.U.W.W.S.S.[.[.[.S.W.W.U.U.D.\.L.N.J.J.
N.L.\.V/ROBOK/K.B.R.V.X-M,0+K+K,0-M.X.":GOSUB 80:GOSUB
80:CALL &8000
70 FOR n=1 TO LEN(a$)STEP
2:c=VAL("&"+MID$(a$,n,2)):POKE a,c:a=a+1:cs=cs-c:NEXT:
WHILE cs<>0:PRINT"DATA error
in";p:END:WEND:p=p+10:RETURN
80 FOR n=1 TO LEN(a$):POKE
a,ASC(MID$(a$,n,1)):a=a+1:NEXT:RETURN
```



THE LIST CONTINUES...

Mr Betts finishes off what he started, as the BASIC introduction wraps up.

When lack of space finally put paid to our efforts last month, we were looking for an easy way to add data to the list.Well, get ready and here goes:

```
Enter: 40 cls:?"
Seek"CHR$(34)"+"CHR$(34)"
to add a new string
Seek
"chr$(34)"<"chr$(34)" to
pad a short
string"

Enter: 60 if s$="+" then
goto 600
Enter: 70 if s$="<" then
goto 700
```

If we want to command,'print inverted commas', as we do in line 40 then PRINT """" would not do.What we can do is to use chr$(34), which is the ASCII code for inverted commas: PRINT CHR$(34).

CLS is a command to clear the given screen window (default screen window is #0).Before we program the 'add' and 'pad' modules, I want you to try this:

Enter i=20:?"("i")"

What you get is (20), which is not quite what is wanted.Numbers, in the CPC's BASIC, are printed with a trailing space.Negative numbers have a preceding minus sign;positive numbers have a preceding space.How do we improve the print?How do we get rid of the unwanted spaces? You may have seen, in text books on BASIC programming, methods which use the string functions: PRINT"("MID$(STR$(i),2")")" is probably the most compact.The spaces do not upset the program, but they do offend my eye.I get rid of them, and I do it my way. Try it, the description below may look complicated, but the doing is simpler.

Use control characters.Their values range from 0 to 31 and, when they are sent to the screen, they are not printed but are interpreted as commands to do something (see Chapter 9, Page 2 in the CPC464 Handbook, or Chapter 7, Page 3 in the CPC6128 Handbook).

The unwanted trailing space is easily removed:after the printing of the number, move the cursor back one character before continuing the printing. There is a control character command which does this moving back:chr$(8), and there is an easy way of typing that.Hold down [CONTROL] (or [CTRL]) and press [H], to get the left pointing arrow.Try that.

```
Type: ?"("i"
Hold down [CONTROL] and
press [H]
Type: )"
Press [ENTER]
See: ( 20).  That is if
'i' still does equal 20.
```

What about the leading space?Getting rid of that is a much prettier ploy.Well, I think it is.Remember that I said, 'control characters ... are not printed ...'Well, some of the control character commands expect there to be one or more following parameters.We will use a control character that expects just one following parameter. Such a command will not print itself and will not print the next character either.If that next character is the undesirable preceding space, we have success.Choose the control character with care, or it may command some strange, unwanted effects.

Control CHR$(23) commands the graphics ink mode; it expects one parameter to follow. Hold down [CONTROL] and press [W], to get a sideways T.Try that.

```
Type: ?"(
Hold down [CONTROL] and
press [W]
Type: "i"
Hold down [CONTROL] and
press [H]
Type: )"
See: (20)
```

You used CONTROL+H for CHR$(8), and CONTROL+W for CHR$(23).You can remember the asociation thus:H is the eighth letter of the alphabet;W is the 23rd. See Apendix III, Page 1 of the CPC464 Handbook, or Chapter 7, Page 8 of the CPC6128 Handbook.

Continued Overleaf

LIST-IT

We'll try two more control characters before we get back to the programming.Hold down CONTROL and press J to get a down pointing arrow.Control character 10 moves the cursor down one line.Hold down CONTROL and press K to get an up pointing arrow.Control character 11 moves the cursor up one line.Try those.

```
Enter: 600 ' ** Add a
string **
Enter: 610 for i=1 to 144
Type:  620 if
e$(1)=""then ?"
Hold down CONTROL and
press J five times, and W
once
Type:  "i+1000"e$(
Hold down CONTROL and
press W
Type:  "i"
Hold down CONTROL and
press H
Type:
)="chr$(34)chr$(34):i=144
Press ENTER
Enter: 630 next
Type:  640 locate 1,10:?"
Hold down CONTROL and
press K three times
Type:  "
Enter: 650 stop
```

Lines 610 and 630 are the beginning and end of a FOR...NEXT loop.The commands execute as was explained above.When line 620 finds that e$(1) is empty (when e$(1)=""), then the remainder of that line prints xxxx e$(xx)="", where xx is the next index number in sequence and xxxx is the corresponding line number. The last statement in line 620 makes i equal to 144, so as to terminate the FOR...NEXT loop.Line 640 puts the cursor at the beginning of the new line (that way of terminating a FOR...NEXT loop is frowned upon by some).

Run the program and choose '+' as the target string.When the new line-to-be is displayed, hold down COPY until the cursors move to just past the second inverted commas - when the copy key is used, both cursors (the read-cursor and the write-cursor) move together:one is on top of the other, so they look just like one.

If you have accidentally gone too far, then use the DEL key to move the write-cursor back until it is at the proper point.The read-cursor will not move at this time.Now press the left arrow key once, so that the write-cursor is on the second inverted commas.You can now type in your new data and, as you do so, the second inverted commas will move ahead of your typing.Press ENTER and your new line now actually is a program line.Enter list, or press F7 to see it.

The 'Pad a short string' module is only just a little bit different; it prints the first short string it finds, not the first empty string.

```
Enter: 700 ' ** Pad a short string
**
Enter: 710 for i=1 to 144
Type:  720 if len(e$(i))<220 then
?"
Hold down CONTROL and
press J five times and W once
Type:  "i+1000"e$(
Hold down CONTROL and
press W
Type:  "i"
Hold down CONTROL and
press H
Type:
)="chr$(34)e$(i)chr$(34):i=144
Press ENTER
Enter: 730 next
Type:  740 locate 1,10:?"
Hold down CONTROL and
press K three times
Type:  "
Press ENTER
Enter: 750 stop
```

LEN (a keyword) is a function which gives the number of characters (LENgth), including spaces, in a string and, in line 720, it is used to detect a string with fewer than 220 characters - or some other number if you should wish.A string on the CPC can have up to 255 characters.This Simple List program will search faster through one string of 240 characters than through 24 strings of 10 characters each: a test showed it to be 6.6 times faster.Arrange your data into long strings rather than many short ones; the 'pad' sub-routine will facilitate your arranging.

Let us assume you have some new items to record.Run the program and, at the prompt:Seek what?enter <.

Line 720 (of the 'pad' sub-routine) is different from line 620 (of the 'add' sub-routine) in that it includes e$(i) between the two pairs of inverted commas.So, if you have entered everything as described, you should see displayed the whole of line 1001 with the cursor at the beginning.As before, hold down COPY until the cursors are just past the second inverted commas and then use the ar-

MODE 2

Figure showing program lines which have control code characters

```
620 IF e$(i)=""THEN PRINT"↓↓↓↓↓┤"i+1000"e$(┤"i"←)="chr$(34)chr$(34):
    i=144
640 PRINT"▯┌↓↑↑↑"
720 IF LEN(e$(i))<220 THEN PRINT"↓↓↓↓↓┤"i+1000"e$(┤"i"←)="CHR$(34)
    e$(i)CHR$(34):i=144
740 PRINT"▯┌↓↑↑↑"
```

Control	Character	Keys	Command
No. 8	←	CTRL+H	Moves cursor back one character.
No.10	↓	CTRL+J	Moves cursor down one line.
No.11	↑	CTRL+K	Moves cursor up one line.
No.23	┤	CTRL+W	Sets graphics ink mode; but the lines above make different use of its attributes. See text.
No.31	▯	CTRL+O	Equivalent to a locate command. Needs two parameters. See text.
No. 1	┌	CTRL+A	Used as the first of the two parameters. ↓ is the second.

row keys to put the write-cursor on them.What you type now will follow on from the word 'item'.

```
Type: ;CAPS ON: An all-
BASIC caps lock
module,p18 MY91U;Shopper
Master: a shopping list
type-in,p51 MY91U;Prince
of Persia: arcade/adven-
ture games review, p34
JL91U
```

check that this data is added to the original string, and lies inside the inverted commas. A string can have 255 characters, as you know, but you need not struggle too hard to try to fill it right up.

```
Press: ENTER
```

What are those semicolons you have added to line 1001?They are the characters I chose to use as a delimiter;a sign to mark the boundary between one item of data and another. Some program lines between 90 and 270 will be amended so as to print just the one delimited item sought, not the whole string.

```
Enter: 135 ?:?"Record
no."i+1000
Enter: 140 for j=p to 1
step-1:rem j is alterna-
tive for i
Enter: 150 if
mid$(t$,j,1)=";" then
start=j+1:j=0
Enter: 160 next
Enter: 170 if j=0 then
start=1:rem not: IF j=-1
Enter: 180 for j=start to
len(t$)
Enter: 190
c$=mid$(t$,j,1):rem c for
character
Enter: 200 if c$=";" then
j=len(t$):goto 230
Enter: 210 if c$=" " and
pos(#0)>34 then ?:goto
230
Enter: 220 ?c$;
Enter: 230 next
```

Line 135 gives the line number:useful when a record needs altering.Lines 140-160 count downwards to find the delimiter at the beginning of the required item, and mark its position in the string with the variable:start.

If the item is the first one within the string, then j will have decremented to zero and line 170 will make start equal to one:the beginning of the string.Otherwise, line 150 will have made j equal to zero, and j will have exited the FOR..NEXT loop equal to minus one.Lines 180-230 print the item, one character at a time, until the finish delimiter (or the end of the string) is reached.

Line 210 does a word wrap.POS(#n) is a function which gets the x coordinate of the text cursor's current position.If the current character is a space and the current POS(#0) is greater than 34 (or choose your own number), then the printing continues on the next line.AND is a logical operator.Refer to AND in your handbook.

I said I would explain my variable names:the symbol i means one thing in the mathematics of complex numbers, but it means another thing in electrical engineering.Electrical engineers use j as a stand-in for the mathematical i. See line 140.

One more line and the program - except for the title screen - will be almost as I use it.I know that I have implied that execution speed is not something that bothers me, but I do think that this short line is worth while;it does make a noticeable difference to the search time.

```
Enter: 15 defint a-z
```

DEFINT is a command which will define all varaiables with a name beginning (in this case) with any letter 'a' to 'z' to be integers, unless they are type-marked otherwise.The CPC's BASIC executes much faster when numbers are integer than when they are real.This is especially so with FOR...NEXT loops.

For anyone who wants yet a little more speed, I give two possiblities:the first is to amend line 120 to its earlier form:

```
Enter: 120
p=instr(p+1,t$,s$):rem p
for position
```

and use all capitals for data and target string.Page 18 of the May 1991 issue of ACU has a caps lock module which you may wish to adapt and incorporate into this program.

The second way is to make the 'case sensitive' feature optional.Amend line 120 as just described and add a new line:

```
Enter: 115 if
lower$(case$)<>"y"then
t$=lower$(t$):s$=lower$(s$)

Amend line 50:

Enter: 50 ?:input"case(y/
n)";case$:line input"seek
what";s$:rem s for seek
```

Line 50 has lost one PRINT command and gained an input command,A y response to the Case (y/n)? prompt will summon the 'case sensitive' feature;any other response will not (line 115).

You might have been wondering if 144 strings (we haven't used number zero) is a big enough number for all that you might wish to record.Well, my own list has been gathering data for years, and the array index is nowhere near that number yet:one string can hold many references.

If you do run out of room, then by that time you will know enough about BASIC programming to solve the problem for yourself.

In this program, as it now is, all the data is held in memory twice;once as part of the program, and once again when the program installs it as string variables.One way to make more room is to hold the data in a separate discfile, and install it into the memory from there.I might have programmed it that way myself originally, but I had no disc drive at the time, and multiloading with a cassette was something to be avoided.

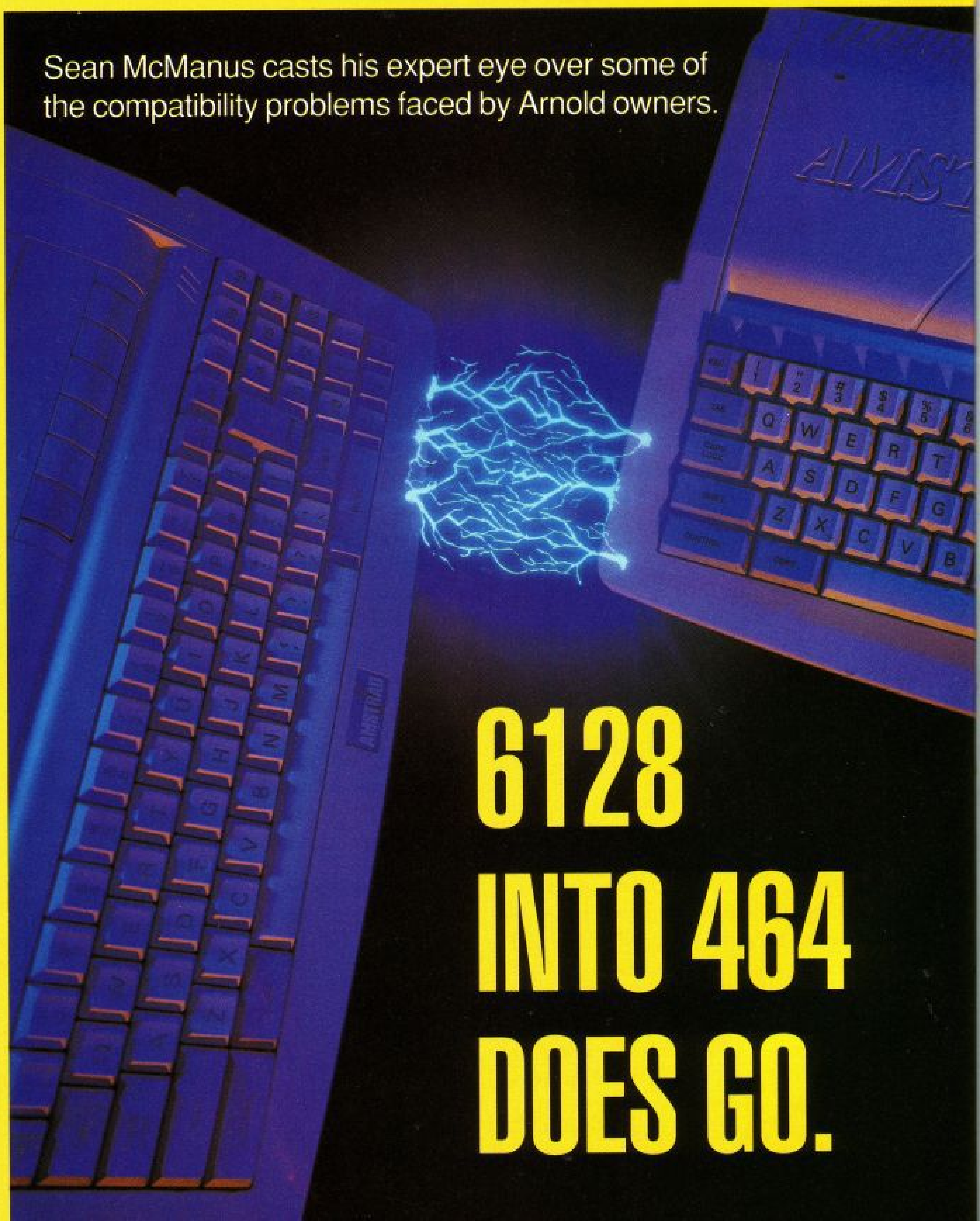
You have not bought an expensive software package;what you have done is to List It Yourself.You have a program ready to keep your record of a small number of items - well, not all that small.

I save my list on each side of three discs.if your data is valuable, then I recommend that you do too.

Try this yourself:delete the locate command from lines 640 and 740, and put the control character equivalent inside the quote string for printing.the character is no.31 (square with three o'clock), keys are CTRL+0 (zero), and two parameters are needed:the x coordinate and the y co-ordinate.Good luck.

6128 INTO 464 DOES GO.

Sean McManus casts his expert eye over some of the compatibility problems faced by Arnold owners.



Listings that don't work?10-Liners that crash?Usually, if everything has been typed in correctly, it is a problem of compatibility.The vast majority of programs nowadays are written on a CPC6128, causing occasional problems for 464 users.This article will show you how to convert most 6128 programs for its predecessor, opening up even more public domain software and rescuing half-working listings you have slaved for hours over.Stand back, nothing up my sleeves, as I prove that (most of the time) 6128 into 464 does go!

The 464 and 6128:what are the differences?A disc drive, 64k, 0.1 of Basic and 5664.

The 6128 has a disc drive built in.The main problem is the CAT command.On the 6128, this will directory the disc, while on the 464, this will catalogue the tape indefinitely.CAT commands should be removed, as should all other disc commands, for example: |DISC, |TAPE, |USER, |REN, |ERA, |A, |B.

Filenames on disc also have a three character extension, which is optional on saving.If omitted, the computer will add .BAS or .BIN as appropriate.Upon reloading, specifying the extension (if it is one of the above) is also optional.

This causes a problem for tape users if the extension is specified on reloading but not on saving (or vice versa), but this is easily solved- simply remove the extension (the full stop and the three characters after it) in all filenames.

The system variable DERR is used for identifying disc errors.Such a routine ought not be required by a tape system but the easiest safety catch is to simply replace DERR with ERR (a valid system variable on both machines for Basic errors).

Our second difference was 64k.There are no two ways about it, I'm afraid.If your program is trying to use the extra 64k of RAM, it will not work on your 464 without a RAM expansion.The following commands are from the Bankmanager utility supplied with the 6128 and, if you should see them, the program is trying to use the extra memory: |SCREENCOPY, |SCREENSWAP, |BANKOPEN, |BANKREAD, |BANKWRITE, |BANKFIND.

Our next difference was 0.1 of a Basic.The original 464 Amstrad had version 1.0 of Basic, while the 6128 features an upgraded version 1.1.This has some of the original's features altered slightly and features several new commands.

Let's begin with the modifications.Basic 1.0 had a bug in it (or at least we are going to concentrate on this one), whereby placing bars (|) in REM statements often had unpredictable side effects.For this reason, you should never place a bar in a REM statement on the 464.

The 464 Basic was also rather particular about where you placed your DATA statements.They had to be at the end of a line.Not so on the 6128, where they may be found at the start or the middle of the line.The correct conversion is to place the data statement as the last statement on the line, moving everything else along, but keeping all the other commands in the same order.For example:

```
10 DATA 1989,1990,1991,1992:CLS:PRINT"Deputy Dog"   [6128]

10 CLS:PRINT"Deputy Dog":DATA 1989,1990,1991,1992   [464]
```

Passing data to RSXs became much more user friendly with the introduction of the 6128, though it may prove quite user irritating to convert them all back.On the 464, string parameters had to be passed via vari-

ables, using the @ symbol, as in this example:

```
|PRINTOUT,@a$
```

The @ feeds the memory address of the variable to the RSX, but don't worry if I am losing you - the actual adaptation is easy.6128 owners do not have to use variables, neither do they have to use the @ symbol.If an RSX is being used with variables in a 6128 program, insert a @ before each variable name (that is, after each comma).If no variable is being used, create a dummy one, making sure that you don't use a name which is already in use - I suggest you use an obscure name to be on the safe side, such as DUMMY$.Look at these examples:

```
|PRINTOUT,a$ [6128]
|PRINTOUT,@a$ [464]

|ADD,a,b,c [6128]
|ADD,@a,@b,@c [464]

|PRINTOUT,"Hello Sid" [6128]
|dummy$="Hello Sid":|PRINTOUT,@dummy$ [464]
```

We now come to the extra commands of the 6128.Some of these are very easy to change and can be replaced by POKE commands or CALLs.The more difficult commands we will need programs to emulate.

Our first easy command is FRAME.This has the effect of waiting forframe flyback and makes animation appear smoother.This can be replaced by CALL &BD19 for exactly the same effect.The command never takes any parameters.

Another command we can deal with in a similar way is CLEAR INPUT, which clears the input buffer of all typed characters.This can be replaced by CALL &BB03.

The 6128 has a command DEC$, which will format a number in a string to the format given.This can be replaced by STR$, and output using PRINT USING.See the following example:

```
PRINT DEC$(11^5,"£££#######,.##") [6128]

PRINT USING "£££#######,.##";STR$(11^5) [464]
```

The 6128 has, in adition to ON BREAK GOSUB and ON BREAK STOP, the command ON BREAK CONT.This is emulated by creating a dummy line with the command RETURN and ON BREAK GOSUB-ing it.Upon breaking, the program will GOSUB our line, and RETURN straight away, having done nothing.This is the same as ON BREAK CONT.The example shows how:

```
10 ON BREAK CONT
20 REM the rest of the program is in here [6128]
9090 REM the last line of the main program
```

```
10 ON BREAK GOSUB 9091
20 REM the rest of the program is in here [464]
9090 REM the last line of the main program
9091 RETURN
```

All of the plotting commands have an optional ink mode parameter, which follows the obligatory x and y coordinates/offsets and the optional ink.For example, all of the following are legal in 6128 Basic:

```
DRAW 320,200,1,4:PLOTR 7,4,2,0:PLOT 200,200,1
```

The extra parameter is accommodated by printing CHR$(23) before it and then printing its own CHR$ before plotting.See the following examples:

```
DRAW 320,200,1,4 [6128]
PRINT CHR$(23)CHR$(4):DRAW 320,200,1 [464]

PLOTR 200,100,2,0 [6128]
PRINT CHR$(23)CHR$(0):PLOTR 200,100,2 [464]
```

Perhaps the most interesting of these is MOVE.It too may have an ink and an ink mode parameter - funny when you think of it in terms of logic.The command means "Go to coordinate x,y and don't plot a point there in this colour in this mode".The 464 MOVE permits neither an ink mode parameter (deal with as above), nor a graphics ink parameter - solution to follow.

The 6128 has two new commands to set the graphics ink and the graphics paper without plotting anything, namely GRAPHICS PEN and GRAPHICS PAPER.The following short program will emulate the former:

```
10 rem GRAPHICS PEN emulator - 1991 Sean McManus
20 data dd,7e,00,c3,de,bb
30 addr=40000:for g=0 to 5:read a$:poke addr+g,val("&"+a$):next
```

This routine, once run, will make CALL 40000,i set the graphics pen to i.For example:

GRAPHICS PEN 5 on the 6128 becomes, after the above program is run, CALL 40000,5

This routine is completely relocatable - you can put it anywhere you choose by changing the value of addr in line 30 and changing the address you subsequently call.I suggest that the routine is added to the program at the beginning, so it need only be run once, even though the CALLs to it may be multiple.

GRAPHICS PAPER is emulated by changing the "de" in the data to "e4".If you need both these commands, remember to poke the routines into two separate places for calling.

The 6128 command COPYCHR$ calls for similar treatment.It looks at the screen and produces the ascii value of the text character at the cursor's location in the given stream.The following program will emulate it:

```
10 REM 6128 Copychr$ emulator
20 data dd,7e,00,cd,b4,bb,f5,cd,60,bb,32,00,00,f1,c3,b4,bb
30 addr=40000:for g=0 to 16:read a$:poke addr+g,val("&"+a$):next
```

The 6128 version takes the format COPYCHR$(#s), where s is the stream.The call takes the format CALL 40000,s (another relocatable routine).It returns its result in location 0, which must be peeked.See the following adaptations (which assume that the routine above has already been run):

```
a=COPYCHR$(#5) [6128]
CALL 40000,5:a=PEEK(0) [464]

PRINT COPYCHR$(2); [6128]
CALL 40000,2:PRINT PEEK(0); [464]
```

The 6128 also has a FILL command, which requires quite a complex program to emulate it.There are thousands of fill routines in the Public Domain (and doubtless a few in back issues of ACU), so there hardly seems any point in reproducing one here, especially since they are rarely relocatable, and we are aiming for maximum flexibility here.This is why I could not use RSXs - they might have clashed with machine code in the program and would not be relocatable.If you know your way around the firmware, you might like to add RSXs as appropriate.

Our final difference? 5664.Oh, that was supposed to be a joke.No, not very funny was it?

Armed with this knowledge, 464 users should be able to throw open the doors to even more PD and even more listings.All we need now is someone to tell us how to run console games on our machines.Any takers?

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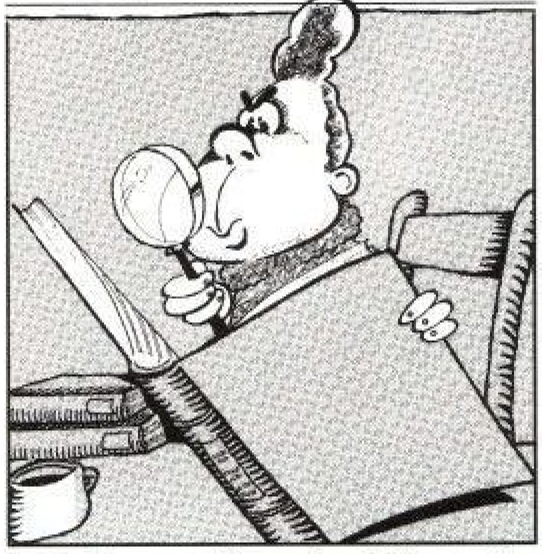
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THE REAL PROOF

Yet again, the epic ACU Proofreader rears its head, to help you get to grips with those nasty errors



Ok, most of you should know the form by now. If you've never come into contact with the mighty proofreader before, however here's how to use it.

When you see the square brackets at the end of each line, on a 10-liner or listing, you'll know that the program has been checksummed for errors, making it easy to pick out any bug-bears, and the system really is very simple to use.

To get your proofcoded proggie to the screen, all you need to do is type in the program below as seen, and save it to a blank, formatted disc as "Proof". Now, boot up your CPC afresh, run "Proof" and then wait until the READY prompt appears again. Next, load your proggie to be proofed and then use the list command to see the codes on the screen. Simple, eh?

To get the codes to printer output, simply remove the REM in line 310 (without removing the sc=pr routine) and save this to disc as "Print". When you want to proofcode your print-outs, all you need to do is run"Print", load your proggie, then use the List#8 routine to see the results. Ok, now it's your turn. Good luck.

```
100 ' ACU Proofreader v1.5 [A1]
110 ' By Aimo Niemi [A3]
120 ' CPC 464, 664, 6128 [A5]
130 ' [A7]
140 MEMORY HIMEM-129 [D6]
150 addr=HIMEM+1:rst=48 [AC]
160 ad=INT(addr/256):dr=addr-256*ad [80]
170 FOR bit=0 TO 15 [B6]
180 READ a$,check:sum=bit [AD]
190 FOR k=1 TO 15 STEP 2 [06]
200 b=VAL("&"+MID$(a$,k,2)) [ED]
210 POKE addr,b [59]
220 addr=addr+1 [1D]
230 sum=(sum+k*b)MOD &FF [5E]
240 NEXT [36]
250 PRINT "Line";460+10*bit; [F3]
260 IF sum<>check THEN PRINT"Checksum error.":STOP
ELSE PRINT"Ok." [B3]
270 NEXT [3C]
280 ' [B2]
290 pr=&BD2B 'printer address [23]
300 sc=&BB5A 'screen address [C8]
310 REMsc=pr 'Add this line when using LIST#8.Observe
however, that the proofcodes may be lost if the
printer buffer happens to be full. [75]
320 ' [A7]
330 FOR i=0 TO 2 [18]
340 POKE rst+1,PEEK(sc+i) [C7]
350 NEXT [39]
360 POKE sc,&C3 [D2]
370 POKE sc+1,dr [74]
380 POKE sc+2,ad [76]
390 IF PEEK(6)=&80 THEN POKE HIMEM+10,&A4 [01]
400 ' [A4]
410 POKE HIMEM+7,&20 [0E]
420 PRINT "Proofcodes to "; [9B]
430 IF sc=pr THEN PRINT "printer";ELSE PRINT "screen
"; [F7]
440 PRINT "are on.":END [9E]
450 ' [AE]
460 DATA e5f5c5d5fe0d203a,15 [C5]
470 DATA 218aac5faf47577e,210 [D2]
480 DATA fe30382efe3a302a,80 [07]
490 DATA 7ef600202ebb2028,243 [75]
500 DATA 3e20f73e5bf77a07,173 [FB]
510 DATA 070707e60ff630fe,28 [31]
520 DATA 3a3802c607f77a1c,39 [49]
530 DATA cb4320ef3e5df73e,61 [E3]
540 DATA 12f7d1c1f1e1f7c9,8 [CC]
550 DATA 2b3e27bb2004fe20,246 [1E]
560 DATA 282804fe27f52007,180 [E4]
570 DATA 3e20bb200daf5ff6,135 [0C]
580 DATA 20f5afbb2003f1af,117 [E0]
590 DATA f5f15f0e007a8357,39 [04]
600 DATA 0c79b820f8f12002,232 [CD]
610 DATA 1e0023189b000000,253 [51]
620 ' [AA]
630 ' poke himem+7,&20 = on [AC]
640 ' poke himem+7,&18 = off [AE]
```

There you go folks, and don't forget you don't need to type in the checksums in the square brackets!

By Duncan Evans.

THE ELECTION GAME (Part Two).

Hopefully, after last month's little outing, you should have a half-finished offering, all set to be completed and ready to run.

All you need to do is add this month's instalment, and you should be ready to commence with the cunning and make for election day victory.Basically, follow the instructions, and use your wits to decide what action to take on each occasion.

Choose wisely, and you should see your popularity ratings soar.However, be careful about your expenditure, especially if you decide to go for a full-blown campaign, as running out of dosh before the big day will do your cause no good at all. Happy typing and enjoy the game as the real thing looms ever nearer.

PS:what about a Hung Parliament?Only if they manage to get every last Politician!!



```
5940 pop(go)=pop(go)-6:IF go=1 THEN pop(2)=pop(2)+3:pop(3)=p
op(3)+3
5942 IF go=2 THEN pop(1)=pop(1)+3:pop(3)=pop(3)+3
5944 IF go=3 THEN pop(1)=pop(1)+3:pop(2)=pop(2)+3
5946 LOCATE 9,14:PRINT"bad":FOR f=1 TO 1000:NEXT:RETURN
5950 pop(go)=pop(go)+8:IF go=1 THEN pop(2)=pop(2)-4:pop(3)=p
op(3)-4
5952 IF go=2 THEN pop(1)=pop(1)-4:pop(3)=pop(3)-4
5954 IF go=3 THEN pop(1)=pop(1)-4:pop(2)=pop(2)-4
5960 LOCATE 9,14:PRINT"great":FOR f=1 TO 1500:NEXT:RETURN
6000 PEN 12:LOCATE 5,6:PRINT "Hold press":LOCATE 5,7:PRINT"c
onference":LOCATE 5,8:PRINT"Press Y/N":LOCATE 5,14:PRINT"10k
":IF party(go)=0 THEN 6025
6010 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 6010
6020 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
6025 IF cash(go)<10 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,1
4:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETUR
N
6030 cash(go)=cash(go)-10:a=INT(RND(1)*100+1):IF a<76 GOTO 6
050
6046 LOCATE 9,14:PRINT"none":FOR f=1 TO 1000:NEXT:RETURN
6050 pop(go)=pop(go)+4:IF go=1 THEN pop(2)=pop(2)-2:pop(3)=p
op(3)-2
6052 IF go=2 THEN pop(1)=pop(1)-2:pop(3)=pop(3)-2
6054 IF go=3 THEN pop(1)=pop(1)-2:pop(2)=pop(2)-2
6060 LOCATE 9,14:PRINT"good":FOR f=1 TO 1500:NEXT:RETURN
6100 PEN 8:LOCATE 5,6:PRINT "CBI backs":LOCATE 5,7:PRINT"you
r party"
6150 pop(go)=pop(go)+4:IF go=1 THEN pop(2)=pop(2)-2:pop(3)=p
op(3)-2
6152 IF go=2 THEN pop(1)=pop(1)-2:pop(3)=pop(3)-2
6154 IF go=3 THEN pop(1)=pop(1)-2:pop(2)=pop(2)-2
6160 LOCATE 9,14:PRINT"good":FOR f=1 TO 1000:NEXT:RETURN
6200 PEN 12:LOCATE 5,6:PRINT "Sponsor":LOCATE 5,7:PRINT"foot
ball":LOCATE 5,8:PRINT"team":LOCATE 5,9:PRINT"Press Y/N":LOC
ATE 5,14:PRINT"100k":IF party(go)=0 THEN GOTO 5325
6210 GOTO 5310
6300 PEN 11:LOCATE 5,6:PRINT "Visit Aids":LOCATE 5,7:PRINT"h
ospice":LOCATE 5,8:PRINT"Press Y/N":IF party(go)=0 THEN 5230
6310 GOTO 5210
6400 PEN 12:LOCATE 5,6:PRINT "Book ads":LOCATE 5,7:PRINT"on
Sky":LOCATE 5,8:PRINT"Press Y/N":LOCATE 5,14:PRINT"20k":IF p
arty(go)=0 THEN 6425
6410 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 6410
6420 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
6425 IF cash(go)<20 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,1
4:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETUR
N
6430 cash(go)=cash(go)-20:a=INT(RND(1)*100+1):IF a<76 GOTO 5
350
6440 GOTO 5240
6500 PEN 14:LOCATE 5,6:PRINT "Organise":LOCATE 5,7:PRINT"par
```

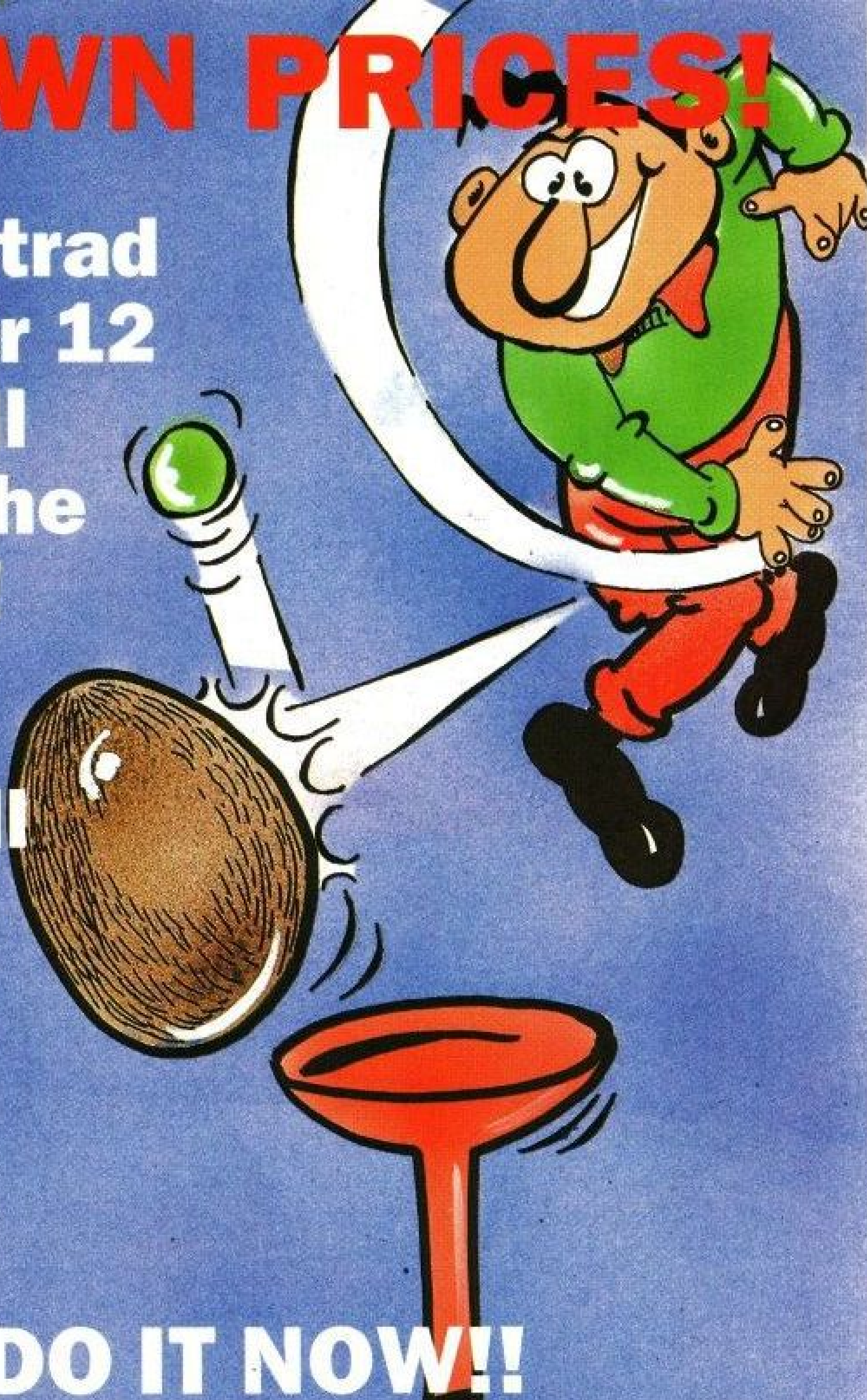
```
ty for":LOCATE 5,8:PRINT"disabled":LOCATE 5,9:PRINT "Press Y
/N":LOCATE 5,14:PRINT"15k":IF party(go)=0 THEN 6525
6510 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 6510
6520 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
6525 IF cash(go)<15 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,1
4:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETUR
N
6530 cash(go)=cash(go)-15:a=INT(RND(1)*100+1):IF a<76 GOTO 5
350
6540 GOTO 5440
6600 PEN 11:LOCATE 5,6:PRINT "Front":LOCATE 5,7:PRINT"bench
MP":LOCATE 5,8:PRINT"arrested"
6650 pop(go)=pop(go)-8:IF go=1 THEN pop(2)=pop(2)+4:pop(3)=p
op(3)+4
6652 IF go=2 THEN pop(1)=pop(1)+4:pop(3)=pop(3)+4
6654 IF go=3 THEN pop(1)=pop(1)+4:pop(2)=pop(2)+4
6660 LOCATE 9,14:PRINT"bad !":FOR f=1 TO 1000:NEXT:RETURN
6700 PEN 3:LOCATE 5,6:PRINT "Appear on":LOCATE 5,7:PRINT"Sky
 TV":LOCATE 5,10:PRINT"Press Y/N":IF party(go)=0 THEN 5930
6710 GOTO 5910
6800 PEN 5:LOCATE 5,6:PRINT "Book TV":LOCATE 5,7:PRINT"adver
t":LOCATE 5,8:PRINT"campaign":LOCATE 5,9:PRINT"Press Y/N":LO
CATE 5,14:PRINT"50k":IF party(go)=0 THEN 6825
6810 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 6810
6820 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
6825 IF cash(go)<50 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,1
4:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETUR
N
6830 cash(go)=cash(go)-50:a=INT(RND(1)*100+1):IF a<76 GOTO 6
850
6840 pop(go)=pop(go)-4:IF go=1 THEN pop(2)=pop(2)+2:pop(3)=p
op(3)+2
6842 IF go=2 THEN pop(1)=pop(1)+2:pop(3)=pop(3)+2
6844 IF go=3 THEN pop(1)=pop(1)+2:pop(2)=pop(2)+2
6846 LOCATE 9,14:PRINT"poor":FOR f=1 TO 1000:NEXT:RETURN
6850 pop(go)=pop(go)+10:IF go=1 THEN pop(2)=pop(2)-5:pop(3)=
pop(3)-5
6852 IF go=2 THEN pop(1)=pop(1)-5:pop(3)=pop(3)-5
6854 IF go=3 THEN pop(1)=pop(1)-5:pop(2)=pop(2)-5
6860 LOCATE 9,14:PRINT"great!":FOR f=1 TO 1500:NEXT:RETURN
6900 PEN 12:LOCATE 5,6:PRINT "Plant":LOCATE 5,7:PRINT"drugs
on":LOCATE 5,8:PRINT"opposing":LOCATE 5,9:PRINT"MP's":LOCATE
 5,10:PRINT"Press Y/N":LOCATE 5,14:PRINT"30k":IF party(go)=0
 THEN 6925
6910 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 6910
6920 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
6925 IF cash(go)<30 THEN LOCATE 5,14:PRINT blank$:LOCATE 5,1
4:PRINT"!NO CASH!":SOUND 1,400,50:FOR f=1 TO 1500:NEXT:RETUR
N
6930 cash(go)=cash(go)-30:a=INT(RND(1)*100+1):IF a<76 GOTO 6
950
6940 pop(go)=pop(go)-20:IF go=1 THEN pop(2)=pop(2)+10:pop(3)
=pop(3)+10
6942 IF go=2 THEN pop(1)=pop(1)+10:pop(3)=pop(3)+10
6944 IF go=3 THEN pop(1)=pop(1)+10:pop(2)=pop(2)+10
6946 LOCATE 9,14:PRINT"ARREST":FOR f=1 TO 1500:NEXT:RETURN
6950 pop(go)=pop(go)+16:IF go=1 THEN pop(2)=pop(2)-8:pop(3)=
pop(3)-8
6952 IF go=2 THEN pop(1)=pop(1)-8:pop(3)=pop(3)-8
6954 IF go=3 THEN pop(1)=pop(1)-8:pop(2)=pop(2)-8
6960 LOCATE 9,14:PRINT"FABBY":FOR f=1 TO 1500:NEXT:RETURN
7000 PEN 13:LOCATE 5,6:PRINT "Take part":LOCATE 5,7:PRINT"in
 TV":LOCATE 5,8:PRINT"debate":LOCATE 5,9:PRINT"Press Y/N":IF
 party(go)=0 THEN 7030
7010 a$=INKEY$:IF A$<>"y" AND a$<>"n" THEN 7010
7020 IF a$="n" THEN LOCATE 5,11:PRINT"DECLINED":FOR f=1 TO 1
000:NEXT:RETURN
7030 a=INT(RND(1)*100+1):IF a<76 GOTO 6850
7040 GOTO 5340
8000 REM REDEFINE GRAPHICS
8010 SYMBOL 255,255,255,255,255,255,255,255,255
8020 SYMBOL 240,0,60,60,60,60,60,126,0
8030 SYMBOL 241,0,56,84,146,16,16,16,0
8040 SYMBOL 242,16,56,60,124,124,124,56,0
8050 SYMBOL 243,36,24,126,70,70,126,36,36
8060 SYMBOL 244,255,129,255,129,255,129,255,255
8070 SYMBOL 245,0,40,124,130,124,0,0,0
8080 SYMBOL 247,8,28,8,8,8,8,8,8
8090 SYMBOL 246,0,84,252,252,124,56,56,56
8095 SYMBOL 248,24,60,110,86,110,60,24,0
8100 SYMBOL 249,24,24,126,126,126,24,24,24
8110 SYMBOL 250,66,36,24,126,126,24,36,66
8120 SYMBOL 251,6,6,6,6,6,62,126,126
8130 SYMBOL 252,2,5,5,66,164,188,96,0
8140 SYMBOL 253,128,64,32,16,24,13,6,4
8200 RETURN
8300 REM Board Paper Colours
8310 DATA 4,10,3,7,8,14,11,10,4,15,6,12,10,14,11,10,14,7,3,1
3
8999 STOP
9000 REM Board Set up
9010 PAPER 5:BORDER 0:CLS
9020 LOCATE 1,16:PAPER 4:PEN 14:PRINT "   ":PRINT"H-Q":PRINT
"   "
9030 LOCATE 4,16:PEN 5:PAPER 10:PRINT CHR$(243);CHR$(243);CH
```



```
R$(243):LOCATE 4,17:PRINT"   ":LOCATE 4,18:PRINT"   "
9040 LOCATE 7,16:PEN 1:PAPER 3:PRINT CHR$(244);CHR$(244);CHR
$(244):LOCATE 7,17:PRINT"   ":LOCATE 7,18:PRINT"   "
9050 LOCATE 10,16:PEN 6:PAPER 7:PRINT CHR$(245);CHR$(245);CH
R$(245):LOCATE 10,17:PRINT"   ":LOCATE 10,18:PRINT "   "
9060 LOCATE 13,16:PEN 14:PAPER 8:PRINT CHR$(244);CHR$(244);C
HR$(244):LOCATE 13,17:PRINT"   ":LOCATE 13,18:PRINT"   "
9070 LOCATE 16,16:PEN 4:PAPER 14:PRINT CHR$(246);CHR$(246);C
HR$(246):LOCATE 16,17:PRINT "   ":LOCATE 16,18:PRINT "   "
9080 LOCATE 16,13:PEN 5:PAPER 11:PRINT CHR$(244);CHR$(244);C
HR$(244):LOCATE 16,14:PRINT "   ":LOCATE 16,15:PRINT "   "
9090 LOCATE 16,10:PEN 0:PAPER 10:PRINT CHR$(243);CHR$(243);C
HR$(243):LOCATE 16,11:PRINT "   ":LOCATE 16,12:PRINT "   "
9100 LOCATE 16,7 :PEN 12:PAPER 4:PRINT CHR$(247);CHR$(247);C
HR$(247):LOCATE 16,8:PRINT"   ":LOCATE 16,9 :PRINT "   "
9110 LOCATE 16,4 :PEN 5:PAPER 15:PRINT"P-R":LOCATE 16,5:PRIN
T"   ":LOCATE 16,6:PRINT"   "
9120 LOCATE 16,1 :PEN 1 :PAPER 6:PRINT CHR$(240);CHR$(240);C
HR$(240):LOCATE 16,2:PRINT"   ":LOCATE 16,3 :PRINT "   "
9130 LOCATE 13,1 :PEN 5 :PAPER 12:PRINT CHR$(248);CHR$(248);
CHR$(248):LOCATE 13,2:PRINT"   ":LOCATE 13,3 :PRINT "   "
9140 LOCATE 10,1:PEN 4:PAPER 10:PRINT CHR$(249);CHR$(249);CH
R$(249):LOCATE 10,2:PRINT"   ":LOCATE 10,3 :PRINT "   "
9150 LOCATE  7,1:PEN 12:PAPER 14:PRINT CHR$(250);CHR$(250);C
HR$(250):LOCATE  7,2:PRINT"   ":LOCATE  7,3 :PRINT "   "
9160 LOCATE  4,1 :PEN 14:PAPER 11:PRINT CHR$(251);CHR$(251);
CHR$(251):LOCATE  4,2:PRINT"   ":LOCATE  4,3 :PRINT "   "
9170 LOCATE 1,1:PEN 4:PAPER 10:PRINT CHR$(252);CHR$(252);CHR
$(252):LOCATE 1,2:PRINT"   ":LOCATE 1,3:PRINT"   "
9180 LOCATE 1,4:PEN 1:PAPER 14:PRINT CHR$(250);CHR$(250);CHR
$(250):LOCATE  1,5:PRINT"   ":LOCATE  1,6 :PRINT "   "
9190 LOCATE 1,7:PEN 5:PAPER 7:PRINT CHR$(243);CHR$(243);CHR$
(243):LOCATE 1,8:PRINT"   ":LOCATE  1,9 :PRINT "   "
9200 LOCATE 1,10:PEN 12:PAPER 3:PRINT CHR$(253);CHR$(253);CH
R$(253):LOCATE 1,11:PRINT"   ":LOCATE  1,12:PRINT "   "
9210 LOCATE 1,13:PEN 9:PAPER 13:PRINT CHR$(243);CHR$(243);CH
R$(243):LOCATE 1,14:PRINT"   ":LOCATE  1,15:PRINT "   "
9220 PEN 1:PAPER 14:LOCATE 5,5:PRINT"   EVENT  ":LOCATE 5,13
:PAPER 12:PEN 5:PRINT"COST":PAPER 0:PEN 8:LOCATE 9,13:PRINT"
RESULT"
9230 LOCATE 13,20:PRINT" CASH ":PEN 1:PAPER 14:LOCATE 2,20:P
RINT "POPULARITY":PEN 0:PAPER 1:LOCATE 1,21:PRINT CHR$(240):
PEN 3:PAPER 4:LOCATE 1,22:PRINT CHR$(241):PEN 12:PAPER 9:LOC
ATE 1,23:PRINT CHR$(242)
9240 RETURN
9300 REM Event Blanker
9310 PEN 4:FOR a=6 TO 12:LOCATE 5,a:PRINT blank$:NEXT:LOCATE
 5,14:PRINT blank$
9320 RETURN
9400 REM Cash Display
9410 PEN 4:FOR f=21 TO 23:FOR a=13 TO 18:LOCATE a,f:PRINT CH
R$(255):NEXT:NEXT:PEN 0:PAPER 4:LOCATE 13,21:PRINT cash(1):P
EN 3:LOCATE 13,22:PRINT cash(2):PEN 9:LOCATE 13,23:PRINT cas
h(3)
9420 RETURN
9500 REM DICE THROW
9510 dice=INT(RND(1)*6+1):RETURN
9600 REM Popularity Display
9610 PEN 5:FOR f=21 TO 23:LOCATE 2,f:PRINT blank$:NEXT
9620 PEN 6:popgraph=INT(pop(1)/10):IF popgraph<1 THEN popgra
ph=1
9630 IF popgraph>10 THEN popgraph=10
9640 FOR f=1 TO popgraph:LOCATE 1+f,21:PRINT CHR$(255):NEXT
9650 PEN 3:popgraph=INT(pop(2)/10):IF popgraph<1 THEN popgra
ph=1
9660 IF popgraph>10 THEN popgraph=10
9670 FOR f=1 TO popgraph:LOCATE 1+f,22:PRINT CHR$(255):NEXT
9680 PEN 13:popgraph=INT(pop(3)/10):IF popgraph<1 THEN popgr
aph=1
9690 IF popgraph>10 THEN popgraph=10
9700 FOR f=1 TO popgraph:LOCATE 1+f,23:PRINT CHR$(255):NEXT
9710 RETURN
9800 REM You Press to Throw
9820 LOCATE 5,7:PRINT "Press any":LOCATE 5,8:PRINT"key to":L
OCATE 5,9:PRINT"throw dice"
9830 a$=INKEY$:IF a$="" THEN 9830
9840 RETURN
9900 REM Blanks old, prints new position:Remember to set GO
and OLD before you call.
9905 PEN boardc(old)
9930 IF old>0 AND old<7 THEN LOCATE ((old*3-3)+go),18:PRINT
CHR$(255)
9940 IF old>6 AND old<12 THEN LOCATE 15+go,18-((old-6)*3):PR
INT CHR$(255)
9950 IF old>11 AND old<17 THEN LOCATE 15-((old-11)*3)+go,3:P
RINT CHR$(255)
9960 IF old>16 THEN LOCATE go,(old-15)*3:PRINT CHR$(255)
9970 IF go=1 THEN PEN 0:PAPER 1: ELSE IF go=2 THEN PEN 3:PAP
ER 4:ELSE IF go=3 THEN PEN 12:PAPER 9
9980 IF posi(go)>0 AND posi(go)<7 THEN LOCATE (posi(go)*3)-3
+go,18:PRINT CHR$(239+go)
9990 IF posi(go)>6 AND posi(go)<12 THEN LOCATE 15+go,18-((po
si(go)-6)*3):PRINT CHR$(239+go)
9992 IF posi(go)>11 AND posi(go)<17 THEN LOCATE 15-((posi(go
)-11)*3)+go,3:PRINT CHR$(239+go)
9994 IF posi(go)>16 THEN LOCATE go,(posi(go)-15)*3:PRINT CHR
$(239+go)
9996 RETURN
```



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This is the season to be jolly, tra-la-la-la-la, la-la-la-lah. It's no good. Try as I might, I can't escape from the festive spirit and write a suitably non-festive introduction. You see, I'm sitting here writing in late December so all I can think of is mince pies (Mmm!), coloured lights (Ahh!), and watching Raiders of the Lost Ark for the eighth time (Errr!)

Oh well, back to the future. In January's issue I mentioned the benefits of using an offline mail reader - basically to save money, but also to allow you to read and answer more messages more thoroughly. I also mentioned in January's issue,THAT there are several 'brands' of offline mail reader (this name can encompass both the program you run on your CPC, and the one that runs on the Bulletin Board), each with its own file formats.

Since the January issue, Paul Martin's CRR (CP/M Read and Reply) has been updated, and is currently (at the time of writing), at version 1.40 - it now supports both XRS-Door type mail packets (also called QMX, RAX, RAQMX, RQSeX), and QWK type mail packets. This is a definite plus since it makes it much more likely that a Bulletin Board near you will be compatible with it.

A SPOT OF LIGHT READING

Struan Bartlett investigates a little off-line reading.

So, I dug out a copy of CRR to find out just how well it works...

It's really not that difficult to use. Here I'll describe XRS-Door, but using QWK is much the same. The first thing to do is to log on to a Bulletin Board that supports XRS-Door. You then find and select the option on the board that loads up the mail reader - so far so good. If it is your first time using XRS-Door then you may have to make some initial configurations as to how you like your mail - for example, what packing program to use, and what upload / download protocol to use as default - you could choose PKZIP or PKARC for the packers, and the usual choice of file transfer protocols. I chose to use the PKZIP compacter, and to use Zmodem for file transfer. You also have to choose what message areas you want to read. This can seem a little daunting, but you only have to do it once.

You then tell the mail reader to download your mail, and away it goes. It compresses the messages it's going to send, using the packer, (and my 'sample' mail packet was nearly a third of the size of the uncompressed

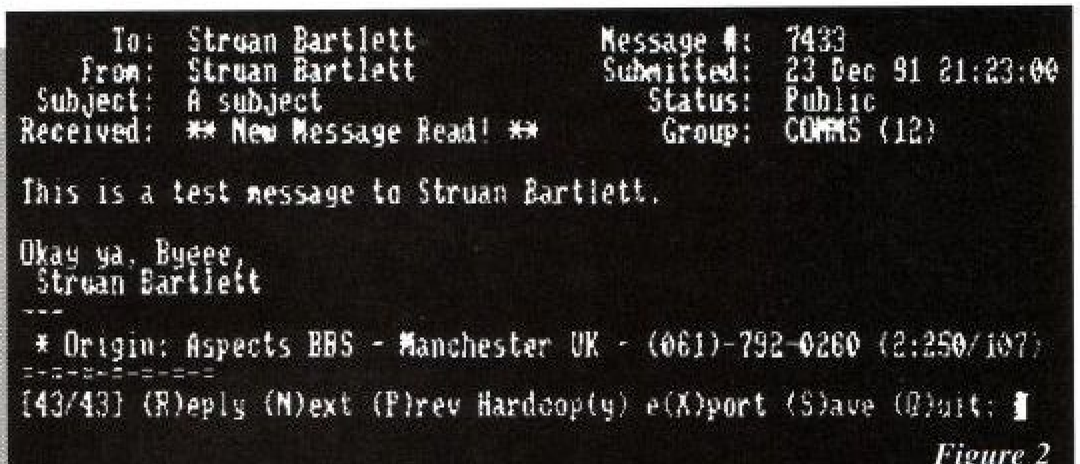


Figure 2

mail), and then downloads them to you. Having done that you log off. Still there? Okay.

Now if you weren't using ZMP or another CP/M comms package, you'll need to find that dusty disk in your collection and load it up first in order to use CRR. From here it's quite a simple matter to uncompress the mail packet (using UNZIP or UNARC) on to your CRR disk, making sure that you've got a CP/M Ascii text editor (like VDE or ZDE) and an archiver (ARK or ARC) on it too. After a teency weency bit of installation you can get down to the nitty gritty of reading your mail.

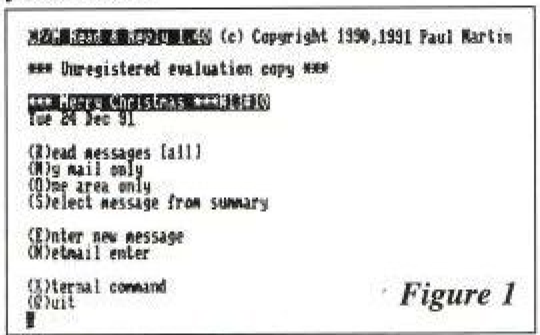


Figure 1

You are presented with a neat main menu (figure 1) - and the options more or less do what they say: 'R' allows you to move back and forth through the messages in the order in which they were downloaded, while 'M' shows you all the mail addressed to you. 'O' allows you to select a mail area of your choice to read through (assuming you opted to download from that area) and 'S' gives you a summary of the messages that were downloaded. 'E' allows you to send a message in any area, and 'N' allows you to send a Netmail message. This option, so the manual tells me, is usable only if the Sysop has given you permission to use Fidonet/Matrix Mail/Netmail on his/her Bulletin Board - after all, it is more expensive to run than echomail as it sends your message direct.

If you select say 'M', you might see a message on screen like figure 2. If you were now to select 'R' from the menu (to reply to it), your choice of text editor is loaded up with it as a starting point, (so you can easily quote from it) and you can compose your reply in the harmony of your own home (assuming that your home is a large bundle more harmonious than MY home!).

Once you've read and replied to all your mail you select the pack option. Your chosen archiver then wraps all your replies up in a neat little compressed bundle all ready to plonk back on to the Bulletin Board's metaphorical doormat. From here it's a very simple matter to upload your reply packet the next time you're on the Bulletin Board.

All in all, CRR is a cracker of a program: it works very well, it's quite fast and does an all round good job of offline message reading. The only thing that CRR (or possibly more precisely XRS-Door) does not appear to be able to do, that, to me, is particularly useful, is the ability to download messages addressed to just myself and to 'All' - in this way you can cut down on the amount of mail you download, while still being able to answer your own mail and fair maidens' cries for help (though more often than not the fair maidens have hairy chests and beards to boot!). Note that CRR is shareware and NOT public domain, so the author requests you to register it for £15 if you use it after one month.

Where can you get hold of a copy of CRR I hear you ask? Well many BBSs that I've logged on to have one version or an other but if you want the most up to date copy, your best bet seems to be Aspects BBS (it seems to be Paul Martin's most frequented local BBS).

I think I'm finally having to realise that my delusion about the whole universe existing inside a computer isn't true after all, and not everybody can send messages through the email networks. To this end I am going to supply you with a backwards and archaic thing called an 'Address'; so send all your questions, answers, views, comments and complaints to: Comms, c/o Amstrad Computer User, Sunnyside Cottage, Carluddon, St. Austell, Cornwall, PL26 8TY. Alternatively, if you're already up and running comm-wise then you can send your mail to me (Struan Bartlett) through the Comms UK, Comms, BBS News, Amstrad, or CP/M echo areas as appropriate. Ciao for now.

A = 300/300 (V21) B = 1200/1200 (V22) C = 2400/2400 (V22bis) D = 1200/75 (V23) E = V32 (one of the 9600bps standards) F = HST (another of the 9600bps standards). All entries are N-8-1, and are operative 24 hours a day unless otherwise specified as Mon-Fri hours, then Sat/Sun hours.

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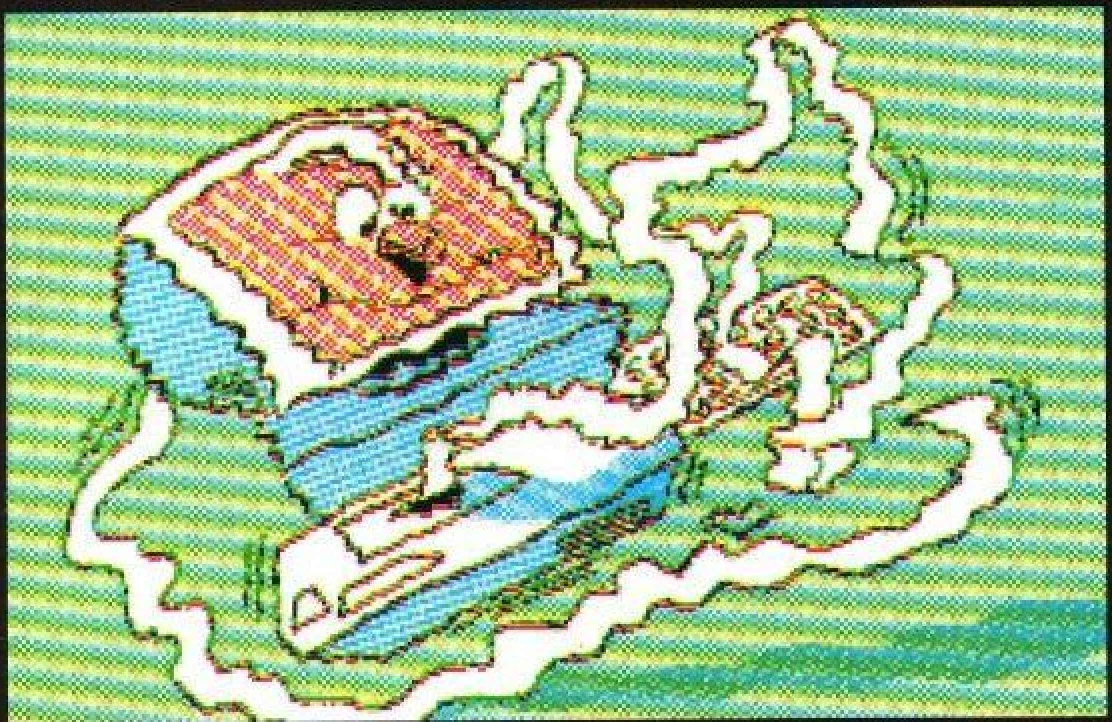
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Want to gossip? Want to stick your oar in? Or have you simply got a gripe about the market to get off your chest? This is the place to send it to.

FEEDBACK

This is your ed calling.I have a feeling that this page is going to become fairly popular in the near future, as it gives all of you lot out there the chance to say what you think about just about anything under the sun.Whether you're sick and tired of people making fun of your machine, or whether you're just fed up with the current state of the market.No matter what your grievance, thoughts or gripes, simply write in to the FEEDBACK column at the address below, and we'll give you the chance to get in print.

Perhaps the market would be a good place to kick off from.For example, how is it that certain High Street stores can start depriving us of our games, simply because technology appears to have moved on from the 8-bit format?

Despite the mammoth user base of our favourite Arnolds, we just don't seem to be able to shout loud enough for anyone to hear us properly.

Obviously, there is more money to be made, selling console games at around forty quid, than there is in selling discs and cassettes for just over a tenner but, if the present consoles manage to stay around as long as the CPC has, then they might have a case for putting us on the shelf (or not, so to speak).

On top of this, the CPC is still, without a doubt, one of the most versatile, powerful and user-friendly home computers on the market.Basically, if you can do it on a PC, you can probably do it on a CPC at a fraction of the price, while gaming on the new Plus based cartridge systems should be every bit as pleasurable as the 8-bit consoles, and would be if anyone had the foresight to actually produce some new games for it.

Obviously, we at ACU will continue to kick out and work hard to maintain the respect that the CPC deserves.So, if you have any opinion on what's been happening to the market over the last year, let us know, so that we can use it to show those knockers that we CPC owners are very much alive and kicking.Never fear, we'll make those doubters eat their words!

MGC AND SSC

You thought we'd forgotten about our Mammoth Games Creation and Serious Software Competition didn't you?Well, nothing could be further from the truth.Each of the staggering entries we have received have been vetted strenuously by the ACU Crew, to sort out the best from the rest and, believe it or not, we are getting very close to the big Day of Reckoning.

If you have an entry, for either competition, get it in quick, as the results of both are to be announced, with a great fanfare, in the June issue of ACU.Yes, that's right, there's still time to get in a late entry, be it big or small.

If you have already submitted your software, be patient for just a few more weeks and you could find yourself being rewarded very highly for your efforts.

Well, I hope we've whetted your appetite a little and, don't forget, you can write to us about any topic under the sun.The address for both of the software competitions, as well as the Feedback column, is as follows:ACU, Sunnyside Cottage, Carluddon, St.Austell, Cornwall. PL26 8TY.

All you need to do, to specify what your intentions are, is to mark your envelope MGC, or SSC for the competitions, or simply put Feedback at the top, for this column.

Come on you lot, we want to know what makes you tick and what makes your blood boil!

Don't forget, there's an incredible outing to Alton Towers on offer for the winner of the Games Creation Competition, while an incredible Brunword Rom awaits the best entry in the Serious Software Competition.

BITS

FOR SALE

PACIFIST-Stop them killing each other!One player strategy board gameSend new tape/formatted disc and £1.50 to A.Swinbourne, 11 Vicarage View, Redditch, Worcs.B97 4RF.

CLOAKER-Attack from an unseen enemy.Strategy board game for one or two players.Send a new tape/formated disc and £1.50 to A.Swinbourne, 11 Vicarage View, Redditch, Worcs.B97 4RF.

AMSTRAD CPC464-Plus machine.New, boxed games and cartridge but no monitor, hence only £120.Phone 0252 375696.

AMSTRAD 6128+-with Colour monitor, all still in boxes and unused.Only £300.Also, Amstrad 464+ still in box without monitor £100.Plus Spectrum+3, still in box, 128k with power pack.Only £100.Finally, Commodore 64 with external disc drive and tape recorder.All brand new for just £200.Offers on any of the above to Duncan Lowthian on 0252 860299.

CPC6128-with colour monitor, DMP2000 printer, 800k 3.5" additional disc drive, joystick, £500 worth of software games and mags.Phone 081 360 3600 after 6pm for details.

CPC6128-with colour monitor, FD-1, mouse, ROMbox, Multiface2, serious software (word processors, DTP, spreadsheets, utilities), some games plus books, manuals (Firmware Guide), magazines.£450 (will not split).Telephone Roger 081 777 3762.

TALISMAN of Lost Souls:An excellent adventure game featuring graphics.Not to be missed by adventure fans.Now only £1.50 tape, £3.75 disc.Cheque/PO to:T.Kingsmill, 202 Park Street Lane, Park Street, St.Albans, Herts.AL2 2AQ.Overseas please add £1.

FOR SALE-Mastertronic tapes - Knightmare, Bomb Fusion and Rescue on Fractalus.£1.25 each.Telephone 0926 495429.

VARIOUS GAMES for sale, including Dizzy 1, Dizzy 2, Dizzy 3, Dizzy 4, Fast Food and Kwik Snax.Write to M.Pacione, 28 Elizabeth Avenue, Milton of Campsie, Glasgow.G65 8HT.Scotland.

MP2 Modulator-£25.Cheetah Mach 1 Joystick-£9.JY2 Joystick-£6.DKTronics 256k silicon disc-£40.Devpac80 CPM+ Assembler (new)-£20.Thirty tape games-£25 (will split).Telephone 061 652 7565.

WANTS/SWAPS

SWAP Operation Wolf and Strider cassette for Supercars or Super Off Road racer disc.Ring 0480 811045 and ask for Paul.Or write to Paul Beattie, 25 Springfield Close, Buckden, Cambs.PE18 9U.

WANTED:On tape or disc:Alien, Little Computer People, Pawn, Guild of Thieves, Beurocracy, Sydney Affair, Vera Cruz Affair.Any price considered.Darren young, 23 Grosvenor Road, Leyton, London.E10 6LG.

EXCHANGE:Programming the Z80 and Mastering Machine Code, books, Plus maxam II Assembler, for ADLAN (Adventure LANguage) and ROM board.R.Dillon, 70 Highfern Gardens, Belfast.BT13 3RE.N.Ireland.

WANTED:Sorcery+ on disc for 6128.Anyone out there have a copy for sale?I'm desperate as I've corrupted my copy.Mrs M.Townshend, Central registry, RAF Gutersloh, BFPO 47.

URGENTLY wanted:Ball Blazer instructions.Will swap for Tankbusters on cassette.First person gets it.Send to P.Hay, 6 Berkeley Close, Hornchurch, Essex.RM11 3QB.

PRETTY PLEASE:Disc wanted:Hitch Hikers Guide to the Galaxy.Phil Rogers, 11 Cob Grove, Bomere Heath, Shrewsbury.SY4 3PT.Phone 0939 290408 anytime.

SERVICES

BORED with current software?Exciting software swapping and contacts club.All machines catered for, especially Amstrad enthusiasts.Quarterly newsletter, hints 'n' tips.Interested?Send SAE to R.Smith, 164 Crown Street, Aberdeen.AB1 2JB.

CHEAP ADS:Penpals, swaps, for sales, fanzines etc..send two second class stamps for details to D.L.O'Glesby, 59 Springfield street, New Basford, Nottingham.NG7 7DU.

HELP GIVEN on Dizzys 1-4, fast food, Kwik Snax and Panic.50p each.Write to M.Pacione, 28 Elizabeth Avenue, Milton of Campsie, Glasgow.G65 8HT for full list, or send money if help wanted.

I WILL CREATE a quality loading screen for any game you have written.Tape only.Send 75p, SAE, game on tape and blank tape to Joe Walters, 8 Chater Road, Oakham, Leics.LE15 6RY.

PROGRAM to list 540+ multiface pokes.Choice of output to screen or printer.Send blank disc, £1 and SSAE to Stephen Muddell, 3 Bexhill Road, Eastbourne, Sussex.BN22 7JH.

HELP OFFERED on all aspects of BASIC and assembly language programming.Don't forget to send an SSAE.Sean McManus 226 Chertsey Rise, Stevenage, Herts.SG2 9JG.

CONVERT your 464 to 6128.Keep 464 equipment and buy 6128 programs.Both will work.Microchip conversion carried out.All you need is a disc drive.Example Stop Press DTP on 464.Contact R.J.Amison, 56 Drubbery lane, Burton, Stoke on trent.ST3 4BH.0782 318548.

I HAVE STARTED A BUSINESS for people who require tailor made programs for all CPCs.Also, does anyone have a Firmware Guide for the 464 to lend?Contact Mr Manning, 9 Steerforth Street, Wandsworth, London.SW18 4HH.

WOW SOFTWARE is a company selling new and re-released adventure games for the CPC.Send SAE for the latest list to 78 Radipole Lane, Weymouth, Dorset.DT4 9RS.

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KEYPRESS cheats for over 50 games, 50p each or £3 the lot.Also, all format cheat book-£3.Send SSAE to Rhys Evans, 69 Vardre Road, Clydach, Swansea, Wales.SA6 5LU.

GAMES DISC from strategy to shoot-em-ups.Great graphics and playability in M/Code.£2.50 if you supply disc or £4.95.Kevin Heywood, 18 Sinclair Avenue, Banbury, Oxon.OX16 7DW.

FANZINES

NEW FANZINE for the Amstrad and C64 tape.We will review PD, so please send any PD and other software to R Stedman, 8 Wulfruna Gardens. Finchfield, Wolverhampton.WV3 9HZ.

CROCO+:The European fanzine for the Amstrad 6128 is here.720k of hints, tips, reviews, pokes and interviews.Please send a 3" disc, £1 and SSAE to Song Yow Ly, 8 Wooderson Close, South Norwood, London.SE25 6JP.

LFACC PRINT OUT:cheats, Beginners' pages, competitions, PD, MC/BASIC, adverts, picture pages, gossip, reviews etc..Only 70p.Add 20p if overseas.Alex Banks, Tickeywood, Crapstone, Yelverton, Devon.PL20 7PW.Tel:0822 852085.

ADVENTURERS HERALD out now, with news, reviews and just about anything to do with adventure.Only 80p from PO Box 522, Tweedale, Telford, Shropshire.Any budding reviewers please get in touch.

AOK Fanzine, includes features, reviews, type-ins, small projects and more.Send 60p(includes P+P) to Paul Escott, 31 Colebrooke Road, Shirley, Solihull, West Midlands.B90 2LB.

CPC FANZINE called Play Mates.Full of reviews, tips, pokes and Bonzo News.With P+P just £1.Carl Surrey, 37 Fairfield Way, Barnet, Herts.EN5 2BQ.

PENPALS

CPC PENPALS wanted to swap games on disc or tape.Send your list to Johann Ardnundsson, Langarveg 17, 560 Varnahlif, Iceland.

DOES ANYBODY who lives in the Kirkcaldy, Fife area, want to come along to my house in the Glebe park/Baulsusney Road area to share programs and games?Contact Ross Anderson, 12 Maria Street, Kirkcaldy, Fife, Scotland.

CPC PENPALS wanted to swap games on cassette only for the 464.Also demo tapes, so send your lists to Matthew Glover, 12 Garrick Street, Alvaston, Derby.DE2 8PT.

PENPALS WANTED to swap games and demos on disc.Any age, any country.Help given on new and old games.Write to Richard Wildey, 41 Enmore Gardens, London.SW14 8AF.

PLEASE NOTE

As you probably know by now, the cost of placing your ad in the ACU BITS section, has now been set at £4.50.None of us likes to place this cost but, in order to get things running smoothly and to ensure that as many of your ads see daylight as possible, it is one of those necessary evils.Keep sending in your wants and your swaps and we'll see they get the bargain priced air space they deserve.

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Please send coupon to ACU, 116-120 Goswell Road, London EC1V 7QD. Please place this ad in the next available space in Bits 'n' Pieces.

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While you're about it, don't forget that the original offerings are still also available on disc and tape.These offerings include:

Learn Amstrad Basic the Easy Way at £12.95 for the disc and £10.95 for the tape.

Money Master at £12.95 for the disc and £10.95 for the tape.

Easydraw2 at £12.95 for the disc and £10.95 for the tape.

ACU Machine Code Assembler at £5 for the disc and £4 for the tape.

All of these programs are fully documented and superb value for money, so get ordering now to avoid delay.Again, make all of your cheques/POs out to DGC Software, and state clearly on your letter which program you require, on which format, before sending it to: DGC Software, 12 Stone Croft, Eccleshill, Bradford.BD2 2HW.

In the meantime, keep your eyes glued to these pages for even more blockbusting disc/tape offers exclusive to ACU readers.See you next month.

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